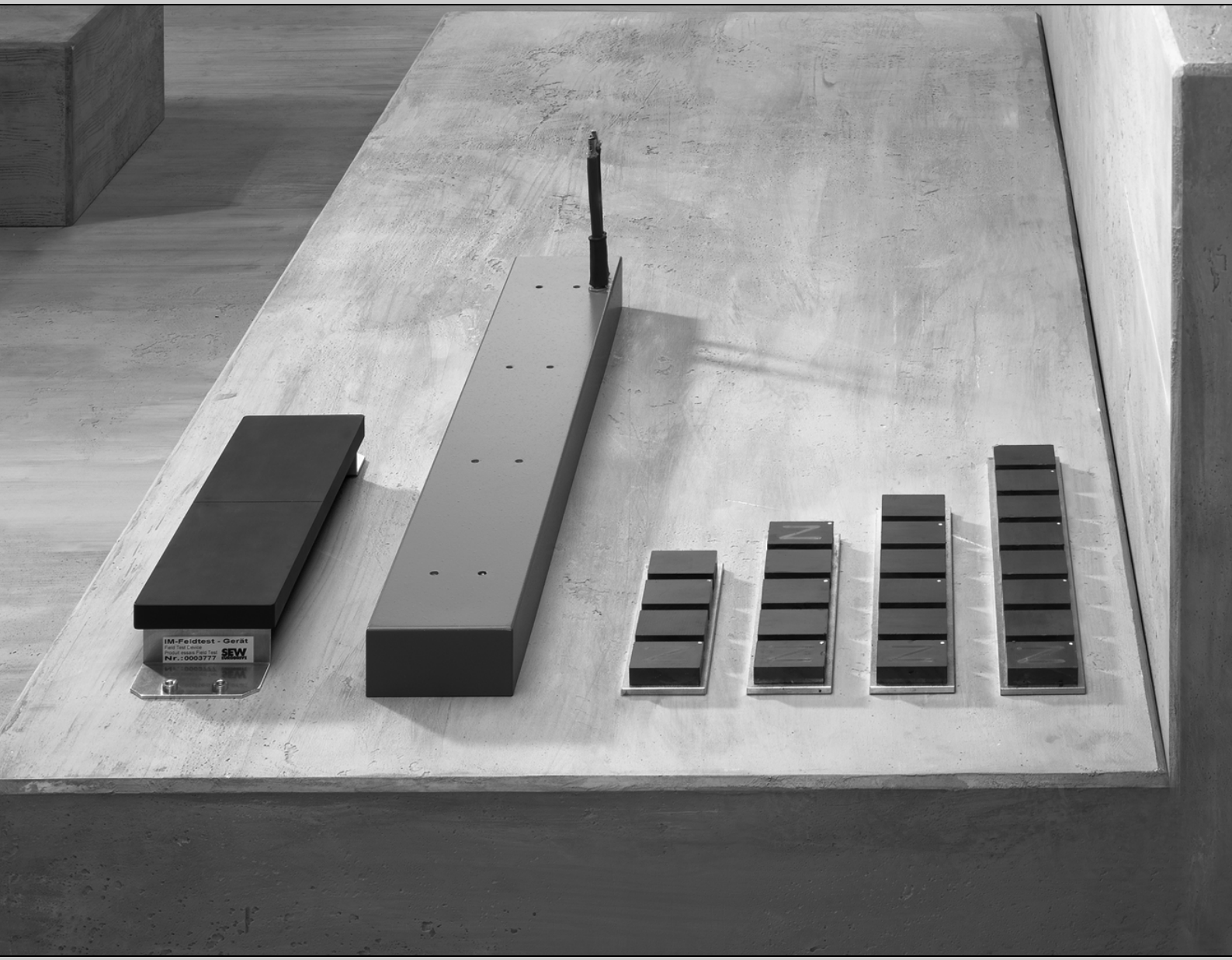
SEW EURODRIVE

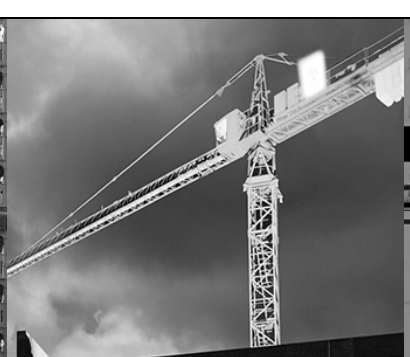
# Operating Instructions




## SLC Synchronous Linear Motors

Edition 07/2011

19315228 / EN



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**1 General information ..... 4**
1.1 How to use the operating instructions ..... 4
1.2 Structure of the safety notes ..... 4
1.3 Rights to claim under warranty ..... 5
1.4 Exclusion of liability ..... 5
1.5 Copyright ..... 5

**2 Safety Notes ..... 6**
2.1 Preliminary remark ..... 6
2.2 General information ..... 7
2.3 Target group ..... 8
2.4 Designated use ..... 8
2.5 Operating environment ..... 8
2.6 Safety functions ..... 8
2.7 Behavior and immediate measures in case of accidents ..... 9
2.8 Disposal ..... 9

**3 Product Description and Overview of Types ..... 10**
3.1 System environment ..... 10
3.2 Part numbers ..... 11
3.3 Nameplate ..... 11
3.4 Scope of delivery of system components ..... 12
3.5 Technical information about MOVIDRIVE® ..... 13

**4 Transportation/Storage ..... 15**
4.1 Notes ..... 15
4.2 Corrosion protection and storage conditions ..... 16
4.3 Painting ..... 16
4.4 Return delivery to SEW-EURODRIVE ..... 16

**5 Mechanical Installation ..... 17**
5.1 Notes ..... 17
5.2 Installation tolerances ..... 18
5.3 Installation of the primary ..... 20
5.4 Installation of the secondary ..... 21
5.5 Installation of the NL16 measuring system ..... 22

**6 Electrical Installation ..... 23**
6.1 Project planning for cable cross-section of the power cable ..... 23
6.2 TH winding thermostats ..... 24
6.3 Safety notes ..... 24
6.4 Electrical connection ..... 25
6.5 Electrical connection (with UL) ..... 25
6.6 Prefabricated cables ..... 26

**7 Startup ..... 27**
7.1 Prerequisites for startup ..... 27
7.2 Parameter set loaded at the factory ..... 28
7.3 Startup procedure ..... 29

**8 Malfunctions ..... 31**

**9 Inspection/Maintenance ..... 32**
9.1 Notes ..... 32
9.2 General maintenance work ..... 33

**10 Technical Data ..... 34**
10.1 Motor data ..... 34
10.2 Dimensions ..... 35
10.3 NL16 measuring system technical data ..... 44

**11 Address List ..... 45**

# 1 General information

## 1.1 How to use the operating instructions

The operating instructions are an integral part of the product and contain important information for operation and service. The operating instructions are written for all persons who assemble, install, start up, and service this product.

The operating instructions must be legible and accessible at all times. Make sure that staff responsible for the plant and its operation, as well as persons who work independently on the unit, have read the operating instructions carefully and understood them. If you are unclear about any of the information in this documentation, or if you require further information, contact SEW-EURODRIVE.

## 1.2 Structure of the safety notes

The safety notes in these operating instructions are designed as follows:

| Pictogram | SIGNAL WORD |
|---|---|
| | Type and source of danger.<br>Possible consequence(s) if disregarded.<br>• Measure(s) to prevent the danger. |

| Pictogram | Signal word | Meaning | Consequences if disregarded |
|---|---|---|---|
| Example:<br> <br>General danger<br> <br>Specific danger, e.g. electric shock | DANGER | Imminent danger | Severe or fatal injuries |
| | WARNING | Possible dangerous situation | Severe or fatal injuries |
| | CAUTION | Possible dangerous situation | Minor injuries |
| | NOTICE | Possible damage to property | Damage to the drive system or its environment |
| | INFORMATION | Useful information or tip. Simplifies the handling of the drive system. | |

## 1.3 Rights to claim under warranty

A requirement of fault-free operation and fulfillment of any rights to claim under limited warranty is that you adhere to the information in the operating instructions. Therefore, read the operating instructions before you start working with the unit.

Make sure that the operating instructions are available to persons responsible for the plant and its operation, as well as to person who work independently on the unit. You must also ensure that the documentation is legible.

## 1.4 Exclusion of liability

You must comply with the information contained in these operating instructions to ensure safe operation of the SLC linear motor and to achieve the specified product characteristics and performance features. SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, any liability for defects is excluded.

## 1.5 Copyright

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Unauthorized reproduction, copying, distribution or any other use of the whole or any part of this documentation is strictly prohibited.

# 2 Safety Notes

## 2.1 *Preliminary remark*

| | |
|---|---|
| | **INFORMATION**<br>Due to the strong permanent magnets installed in the secondaries of the SLC linear motors, the following safety regulations must be observed.<br>**Please also observe the supplementary safety notes in the individual sections of this manual.** |

| | |
|---|---|
| | **DANGER**<br>**The strong magnetic fields and the associated high ferromagnetic attraction forces can be directly harmful to your health, for example for persons with cardiac pacemakers, or indirectly as a result of fast motor movements and high thrust forces.**<br>Severe or fatal injuries.<br>• Work must not be carried out by persons with cardiac pacemakers. |

| | |
|---|---|
| | **DANGER**<br>**Danger caused by magnetic field**<br>Even at a distance of 100 mm, the magnetic flux density of the secondaries present is < 5 mT (at 150 mm < 0.5 mT). Since the magnetic flux density in SLC linear motors is generated exclusively by the magnetic fields of the secondaries, this value is independent from the operating status of the SLC linear motor.<br>Severe or fatal injuries.<br>• Special caution needs to be the rule in close proximity (distances < 50 mm) to the secondaries due to the high attraction forces. Magnetic forces are often underestimated since they are not visible.<br>• Magnetic attraction forces often arise abruptly in the immediate proximity range and can grow in excess of several 100 kg for medium-sized objects. |

## 2.2 General information

**DANGER**

During operation, the linear motor can have movable parts.

Severe or fatal injuries.

- All work related to transportation, storage, setup/mounting, connection, startup, maintenance and repair may only be carried out by qualified personnel, in strict observance of:
  - The relevant detailed operating instructions
  - The warning and safety signs on the motor
  - All other project planning documents, operating instructions and wiring diagrams related to the drive
  - The specific regulations and requirements for the system
  - The national/regional regulations governing safety and the prevention of accidents
- Never install damaged products.
- Removing covers without authorization, improper use as well as incorrect installation or operation may result in severe injuries to persons or damage to property.
- Do not lead any metallic objects that are heavy (> 1 kg) or have a wide surface (> 1 dm²) to the secondary with unprotected hands to the secondary.
- Place at least two pointed wedges made of firm, non-magnetic material, such as brass or stainless steel (edge angle approx. 10° - 15°) and a hammer ready to free parts of the body that have been trapped. If necessary, e.g. if mounting space is limited, customized installation appliances should be used to facilitate and safeguard work.
- Keep watches and magnetizable data carriers (such as credit cards, disks, etc.) away from close proximity (<100 mm) of the SLC synchronous linear motors.

Refer to the documentation for additional information.

**WARNING**

Touching the linear motors when they have not cooled down could result in burns. linear motors can have a surface temperature of over 100 °C.

Danger of burns

- Never touch the linear motor during operation or in the cool down phase once it has been switched off.

## 2.3 Target group

SLC linear motors represent a potential hazard for persons and property. Consequently, assembly, installation, startup and service work may only be performed by trained personnel -who are aware of the potential hazards.

Staff must be appropriately qualified for the task in hand and be familiar with the assembly, installation, startup and operation of the product. They must read the operating instructions, in particular the safety notes section, carefully and ensure that they understand and comply with them.

## 2.4 Designated use

SLC series synchronous linear motors are motors for industrial and commercial systems. If motors are subject to loads other than those permitted, or if they are used areas of application other than industrial and commercial systems, you must first consult with SEW-EURODRIVE.

Do not operate the unit until you have ensured that the machine complies with the Low Voltage Directive 2006/95/EEC and that the conformity of the end product has been determined to comply with the Machinery Directive 2006/42/EC.

Technical data and information about permissible conditions can be found on the nameplate and in the documentation.

## 2.5 Operating environment

**The following uses are prohibited unless the units are expressly designed for the purpose:**

- Use in potentially explosive areas.
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation. Please contact SEW-EURODRIVE if you have any questions on the environmental conditions.
- Use in non-stationary applications that are subject to mechanical vibration and impact loads in excess of the requirement of EN 50178.

## 2.6 Safety functions

SLC linear motors are not allowed to perform any safety functions unless they are subordinate to other safety systems.

Use higher-level safety systems to ensure protection of equipment and personnel.

## 2.7 Behavior and immediate measures in case of accidents

- If the machine is connected to the power supply system, press the EMERGENCY OFF button immediately.
- Request first aid immediately.
- You need the tools mentioned previously to free body parts jammed in between two secondaries or a secondary and a ferromagnetic component (e.g. steel plate, steel carrier, machine bed, tool). Separate the components at the separation gap using the pointed wedge.

**⚠ WARNING**

Danger caused by magnetic field

Severe or fatal injuries.

- The magnetic forces are always present regardless of the operating status of the system.

## 2.8 Disposal

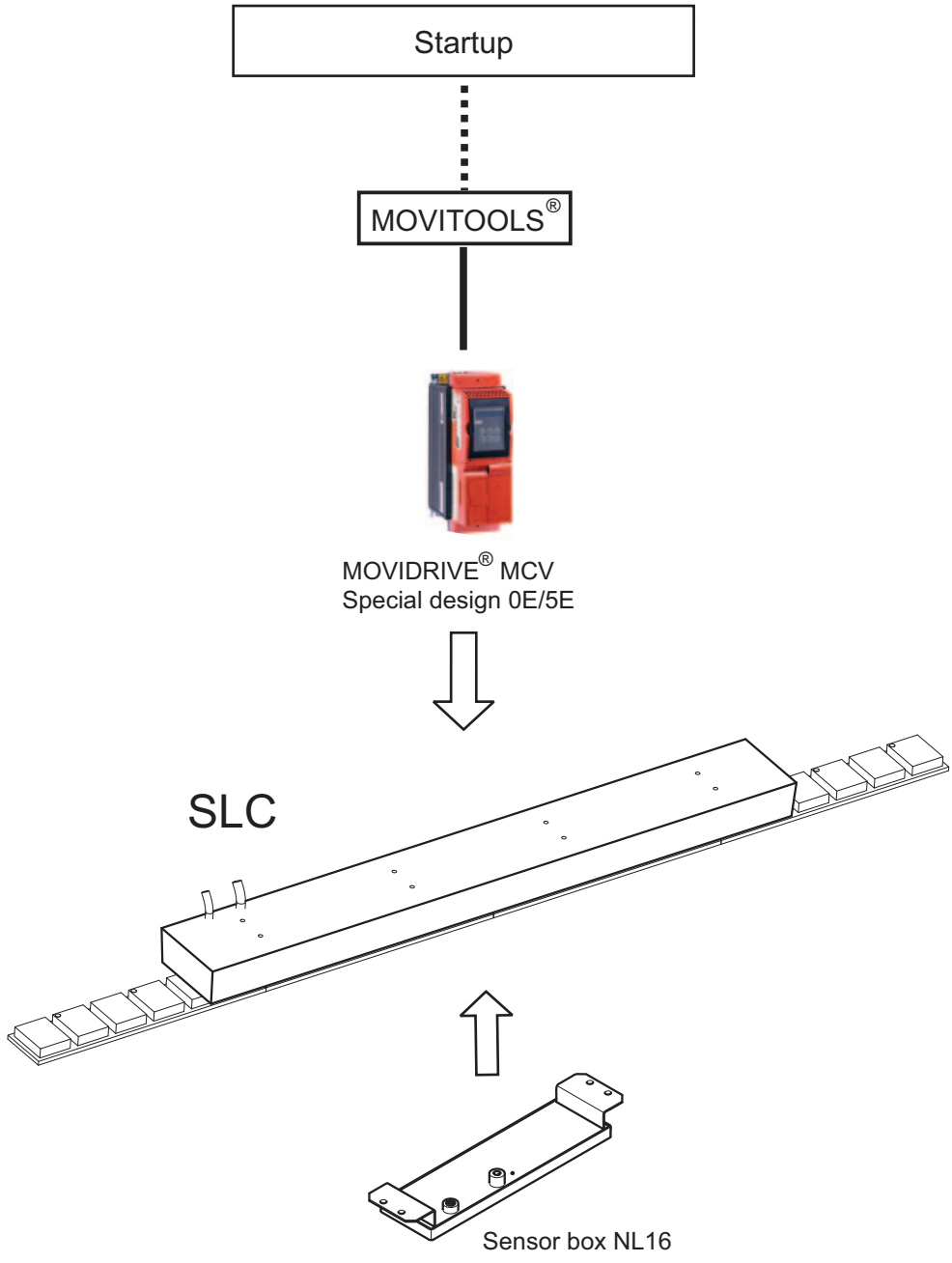
**This product consists of:**

- Iron
- Aluminum
- Copper
- Plastics
- Electronic components

**Dispose of all components in accordance with applicable regulations.**

# 3 Product Description and Overview of Types

## *3.1 System environment*

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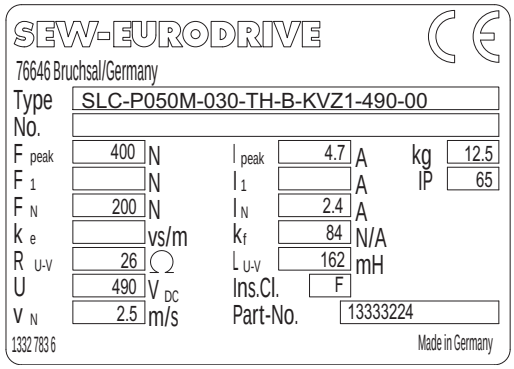
## 3.2 Part numbers

| Article no., | Product |
|---|---|
| 05956501 | Secondary 200 mm |
| 05956498 | Secondary 250 mm |
| 05956455 | Secondary 300 mm |
| 05956463 | Secondary 400 mm |
| 13334034 | Secondary 608,5 |
| 13334018 | Secondary 708,5 |
| 13333984 | Secondary 1108,5 |
| 13333224 | Primary |
| 16450892 | Primary with UL approval |
| 13002325 | Linear encoder |
| 08295107 | MCV40-A0055-5A3-4-0E |
| 18253431 | MCV40-A0055-503-4-5E |

## 3.3 Nameplate

A label is attached to the primary to show the following technical data:

### *Nameplate SLC*

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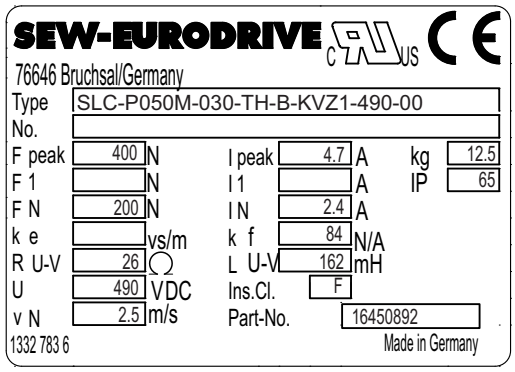
| | | |
|---|---|---|
| Type | = | Type Code |
| No. | = | Customer order number |
| $F_{PeaK}$ | = | Peak force |
| $F_1$ | = | Maximum force available up to $v_1$ |
| $F_N$ | = | Permanent force |
| $k_e$ | = | Voltage constant |
| $R_{U-V}$ | = | Winding resistance |
| U | = | Voltage |
| $v_N$ | = | Velocity up to which the rated force is available |
| $I_{PEAK}$ | = | Maximum current |
| $I_1$ | = | Current at $F_1$ |
| $I_N$ | = | Nominal current |
| $k_f$ | = | Force factor |
| $L_{U-V}$ | = | Inductance |
| Ins. cl. | = | Insulating material class |
| Part no. | = | Part number |
| kg | = | Mass |
| IP | = | Degree of protection |

***Nameplate SLC with UL***

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| | | |
|---|---|---|
| Type | = | Type Code |
| No. | = | Customer order number |
| $F_{PeaK}$ | = | Peak force |
| $F_1$ | = | Maximum force available up to $v_1$ |
| $F_N$ | = | Permanent force |
| $k_e$ | = | Voltage constant |
| $R_{U-V}$ | = | Winding resistance |
| U | = | Voltage |
| $v_N$ | = | Velocity up to which the rated force is available |
| $I_{PEAK}$ | = | Maximum current |
| $I_1$ | = | Current at $F_1$ |
| $I_N$ | = | Nominal current |
| $k_f$ | = | Force factor |
| $L_{U-V}$ | = | Inductance |
| Ins. cl. | = | Insulating material class |
| Part no. | = | Part number |
| kg | = | Mass |
| IP | = | Degree of protection |

## 3.4 Scope of delivery of system components

The scope of delivery for SLC linear motors comprises:

- Primaries
- Secondaries with permanent magnets
- Control and regulation systems such as MOVIDRIVE®
- Linear measuring system

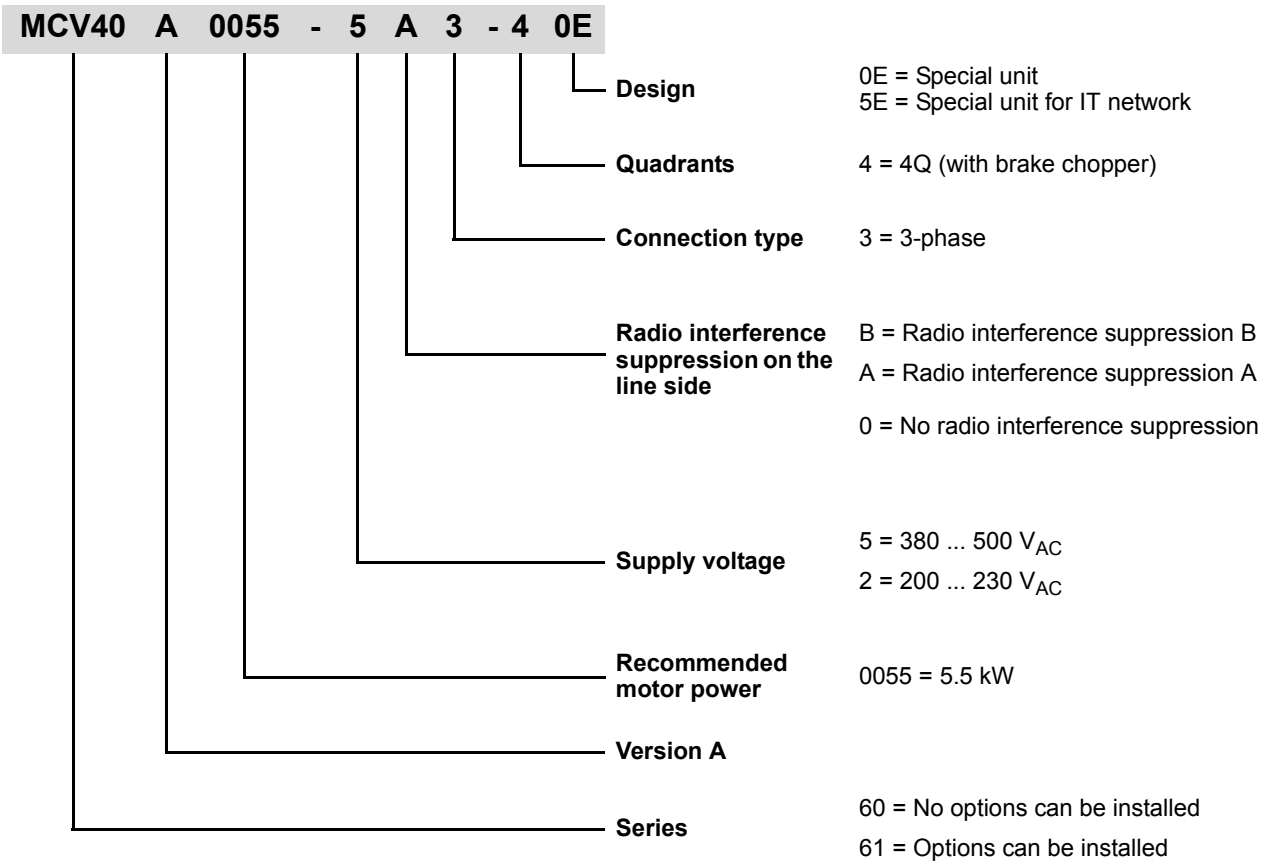
***Not included in the scope of delivery:***

- Linear guide systems
- Linear measuring systems NL16
- Cable carriers
- Brake systems
- Buffers / shock absorbers

## 3.5 Technical information about MOVIDRIVE®

In general, SLC linear motors can also be operated with MOVIAXIS® or MOVIDRIVE® B with a suitable encoder system. In connection with NL16, operation is only possible with MCV special design -0E.

***MOVIDRIVE® compact type designation***


MCV40 A 0055 - 5 A 3 - 4 0E
Design
0E = Special unit
5E = Special unit for IT network
Quadrants
4 = 4Q (with brake chopper)
Connection type
3 = 3-phase
Radio interference suppression on the line side
B = Radio interference suppression B
A = Radio interference suppression A
0 = No radio interference suppression
Supply voltage
5 = 380 ... 500 V_AC
2 = 200 ... 230 V_AC
Recommended motor power
0055 = 5.5 kW
Version A
Series
60 = No options can be installed
61 = Options can be installed

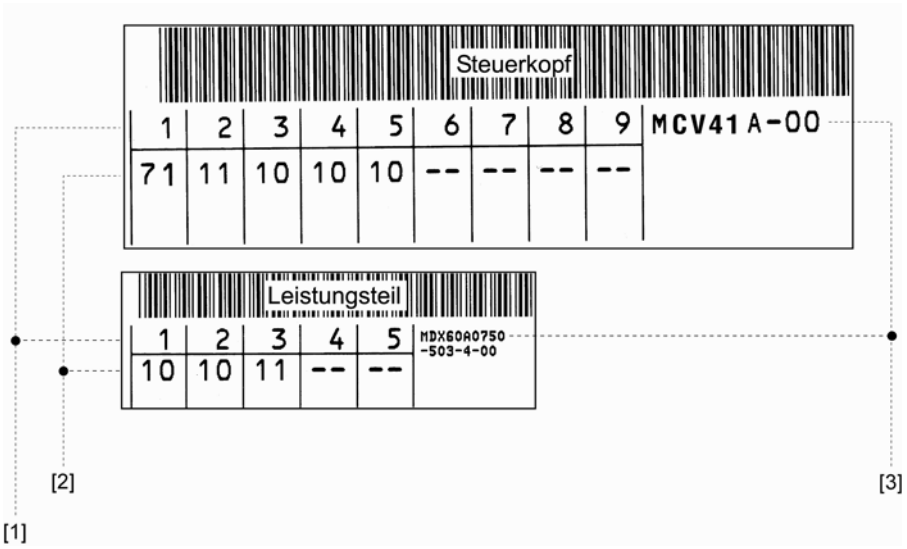
| | |
|---|---|
| | **INFORMATION** |
| | You will find additional information in the MOVIDRIVE®*compact* system manual. |

***Part number and status***

MCV40A0055-5A3-4-0E is available with part no. 08295107.

The units have a status label for the power section and one for the control unit. They are attached to the side of the unit next to the nameplate.

At least version 71 must be displayed in the first status field of the control unit for operation according to chapter 7.2.

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[1] Component / part
[2] Status
[3] Type designation

# 4 Transportation/Storage

## 4.1 Notes

| | |
|---|---|
| | **STOP** |
| | Improper transport may result in damages to the linear motor.<br>Possible damage to property<br>• Do closely observe the notes in this chapter. |

- Use suitable, sufficiently rated handling equipment if necessary.
- Inspect the shipment for any damage that may have occurred in transit as soon as you receive the delivery. Inform the shipping company immediately. It may be necessary to preclude startup.

  Use suitable, sufficiently rated handling equipment if necessary. Remove transport fixtures prior to startup.
- Mark the storage locations of secondaries ('Caution! Strong magnetic fields', symbols).
- Never store secondaries unpacked; use non-magnetic packaging material with a thickness of at least 2 cm (0.79 in) on the magnetic side.
- Observe the warning instructions on the packaging.
- Keep storage area dry.
- Protect storage sites from heat.
- For transportation of machines or components with primaries or secondaries already installed on travel axis/axes: Lock the axis/axes to prevent accidental movement (due to missing self-locking mechanism).

## 4.2 Corrosion protection and storage conditions

The motor parts are protected against corrosion for five years in closed original packaging.

Observe the following storage conditions for the linear motors:

- Store the linear motors inside.
- Keep storage area clean and dry
- Maintain a storage temperature between -5 °C and +70 °C
- Relative humidity must not exceed 95 %
- Original packaging must not be damaged

Stored SLC linear motors must be equipped with the following warning labels:

| Warning | Magnetic |
|---|---|
| | |

.

## 4.3 Painting

***Primary*** The primaries are treated with an anti-corrosion coating OS1.

***Secondary*** The mounting platform of the secondaries is electrogalvanized.

## 4.4 Return delivery to SEW-EURODRIVE

Return primary and secondary components in original packaging only.

**⚠ WARNING**

**Danger caused by magnetic field**

Severe or fatal injuries.

- Cover the magnetic side of the secondaries with a wooden board (thickness 2 cm) over the entire surface and connect. Special caution needs to be the rule in close proximity (distances < 50 mm) to the secondaries due to the high attraction forces. Magnetic forces are often underestimated since they are not visible.
- Magnetic attraction forces often arise abruptly in the immediate proximity range.

# 5 Mechanical Installation

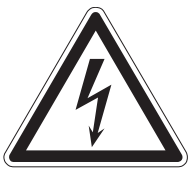
## 5.1 Notes

**DANGER**

**Danger caused by magnetic field**

Severe or fatal injuries.

- Never place secondaries on metal.
- Never place a primary directly on a secondary.
- Hold the tools firmly (with both hands). Slowly guide the tools to the secondary.
- Wear work gloves during installation.
- Do not remove the packaging of the secondary until directly before it is installed.
- Carry out installation work in pairs only.
- Cover already installed secondaries with at least 2 cm of non-magnetic material (e.g. wood) during installation.
- Use customized installation appliances to facilitate and safeguard work, if necessary (e.g. if mounting space is limited).
- Make sure that the primary is grounded according to regulations with the PE grounding bar in the control cabinet as a reference potential.
- Attach the enclosed warning sign in a prominent position or in the vicinity of the secondaries installed.
- Note that depending on the local approval regulations for the entire system, the area of the primary facing the air gap is not considered as part of the housing. This might have to be taken into account when planning the system.



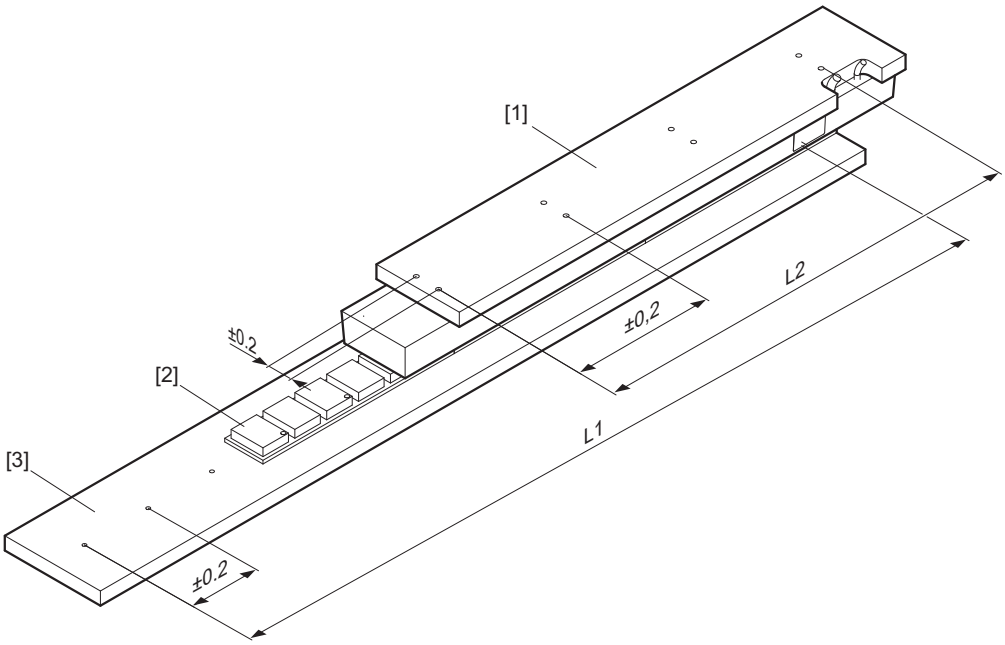
**DANGER**

Danger of electric shock.

Severe or fatal injuries.

- Make sure that the primary is grounded according to regulations with the PE grounding bar in the control cabinet as a reference potential.

## 5.2 Installation tolerances

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[1] Installation of primary

**with reference to the primary, max. deflection length 0.3 mm / width 0.1 mm**

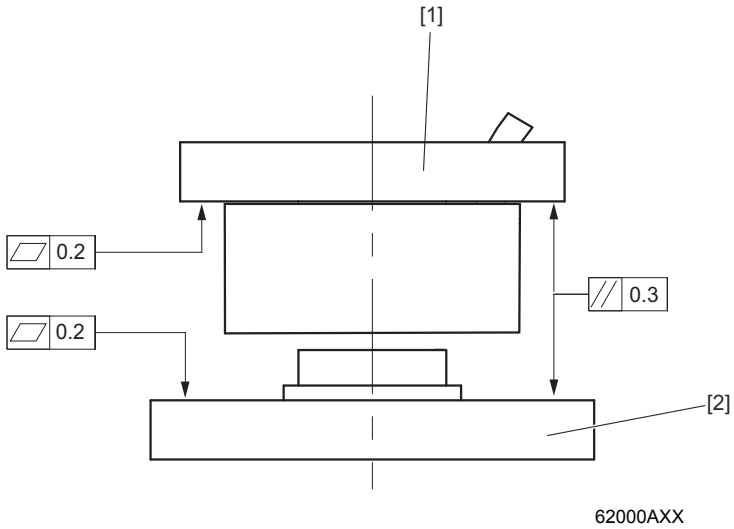
[2] Secondary

**with reference to 400 mm length, max. deflection 0.1 mm**

[3] Installation of secondary

[L1] ± 0.3 mm with reference to 1000 mm of the secondary

[L2] ± 0,2 mm with reference to the total length of the primary




[1] Installation of primary (mounting plate)
[2] Installation of secondary (basic body, e. g machine base)

Shape and position tolerances in reference to 1000 mm length

Adhering to shape and position tolerances is necessary for the functionality of the linear motor. These accuracies are sufficient for the functionality of the NL16 encoder system.

These shape and position tolerances will have to be observed in operating mode at steady-state temperature of the linear motor. Also take into consideration the influence of the loads applied by the customer.

The primary has a construction-related flatness tolerance of max. 0.8 mm at the contact surface before installation.

To achieve a flatness of < 0.2 mm when installed, the primary must be bolted on a flat substructure with a bending stiffness corresponding to at least a square hollow section according to DIN EN10210-60x60x6-S235JR.

During the mounting process, a force of max. 1000 N/bolt acts on the outer mounting bolts (distance 600 mm). The additional magnetic attraction forces have not been taken into account for this. They must be considered when dimensioning the customer substructure.

## 5.3 Installation of the primary

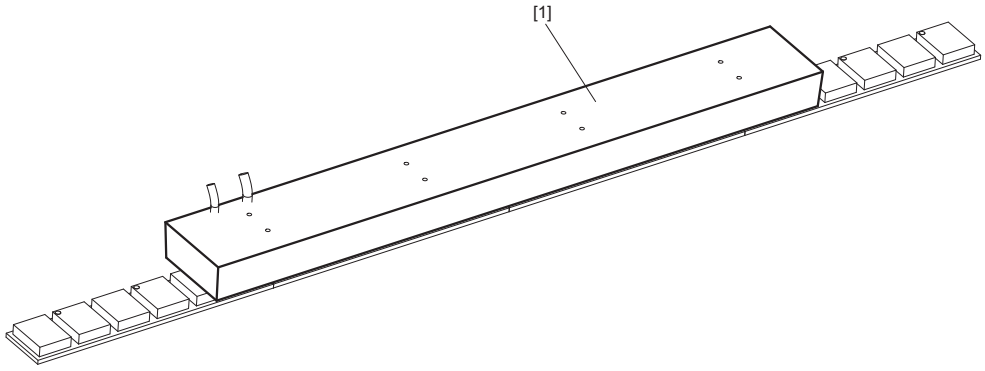
***Before you start***

Check that

- the information on the nameplate of the drive and/or the output voltage of the servo inverter match the voltage supply system
- The drive is undamaged (no damage caused by transportation or storage).
- You are certain that the following requirements have been fulfilled:
  - Ambient temperature between +5 °C and +40 °C[1)]
  - No oil, acid, gas, vapors, radiation, etc.
  - Installation altitude max. 1000 m above sea level[1)]

| | |
|---|---|
| | **INFORMATION** |
| | Start with the installation of the primary. Install the secondaries once all other installation work has been completed, immediately prior to startup of the drive. Observe the safety notes about handling the secondaries (see chapter 2). |

***Preparing the primary for installation***

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Mounting surfaces [1]:

The mounting surfaces of the primary were treated with an anti-corrosion agent at the factory. Before installing the surface, wipe the surface with a lint free cloth to remove any dust, dirt, etc. clinging to the surface.

Retaining screws:

Use **all** M6 tapped holes in the mounting surface for retaining purposes. Use screws of size M6, strength class 8.8 or higher. The minimum depth of engagement is 10 mm. The tightening torque is always 10 Nm and may not be exceeded, even with screws of a higher strength class.

1) Observe the derating information in chapter 4.9 of the catalog

## 5.4 Installation of the secondary

***Preparing the secondaries for installation***

**WARNING**

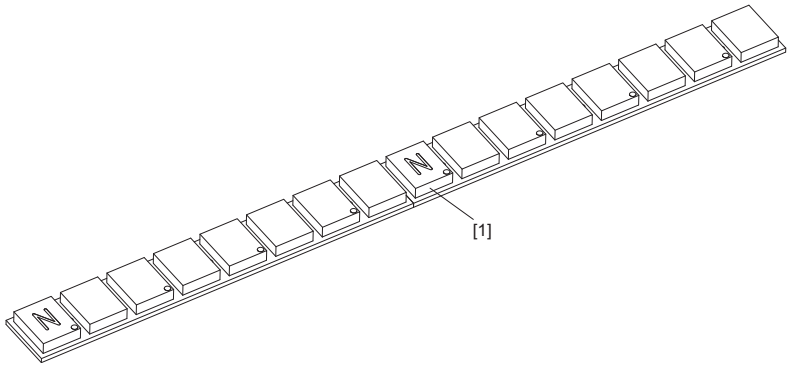
Danger caused by magnetic field

Severe or fatal injuries!

- Do not unpack parts until you are ready for installation.
- Observe the safety notes in chapter 2

***Installing the secondaries***

Install the first part at one end of the travel section and work your way down in one direction. The orientation of the first part can be random. The adjoining part will have the same orientation. The north [1] pole is marked on the secondaries (? see figure below). You can combine secondaries of different lengths.

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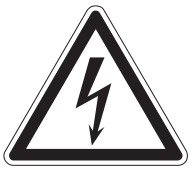
[1] North pole

Move primary over secondaries by hand prior to startup of drive to check for unhindered operation.

Use non-magnetic testing devices, such as feeler gauges made of stainless steel, aluminum, brass or copper sheets if you are planning to check the visible air gap.



**DANGER**

**Danger of electric shock.**

Induced voltages of up to 500 V can be generated by movement of the primary (generator principle) even if the motor is not connected.

Severe or fatal injuries!

- Only remove the protection cap on the power plug of the primary immediately before connecting the power plug to the power supply.

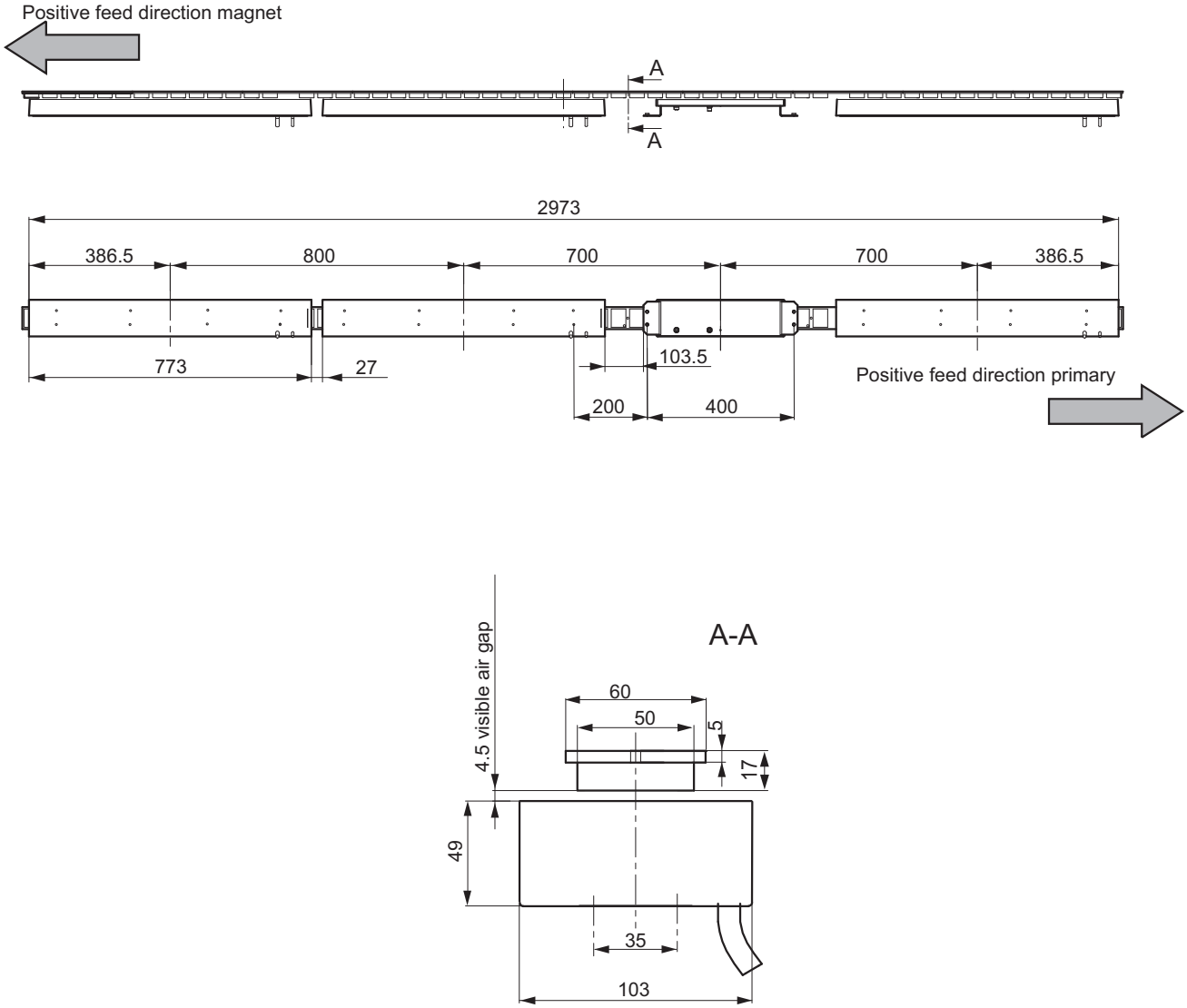
## 5.5 Installation of the NL16 measuring system

The NL16 measuring system is screwed to a carrier plate with 4 screws. When designing the motor it was ensured that the SLC-P050M-030, for example, has the same height as the NL16 so that both can be directly mounted on the same carrier plate.

For the motor to be commutated and energized in the correct phases, the measuring system must be mounted according to the distances and orientation displayed in the figure.

Observe the following tolerances when installing:

- Nominal clearance: 4,5 mm
- Misalignment at the sides at right angles to the direction of travel: Center +/- 0.5 mm (0.02 in)
- Distance form center of NL16 to center of SLC-P: 700 mm (27.56 in) + (1....n x 100 mm (3.94 in)) +/- 1 mm (0.04 in)

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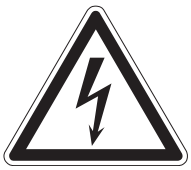
# 6 Electrical Installation



**DANGER**

**Danger of electric shock.**

Severe or fatal injuries.

- Strictly observe the safety notes in the individual chapters.
- When motors are powered from inverters, you must observe the wiring instructions issued by the inverter manufacturer. Observe the operating instructions for the inverter.

**INFORMATION**

A bag containing the following information is attached to the motor:

- Safety notes

**Observe these notes.**

## *6.1 Project planning for cable cross-section of the power cable*

***Cable dimensioning according to EN 60402***

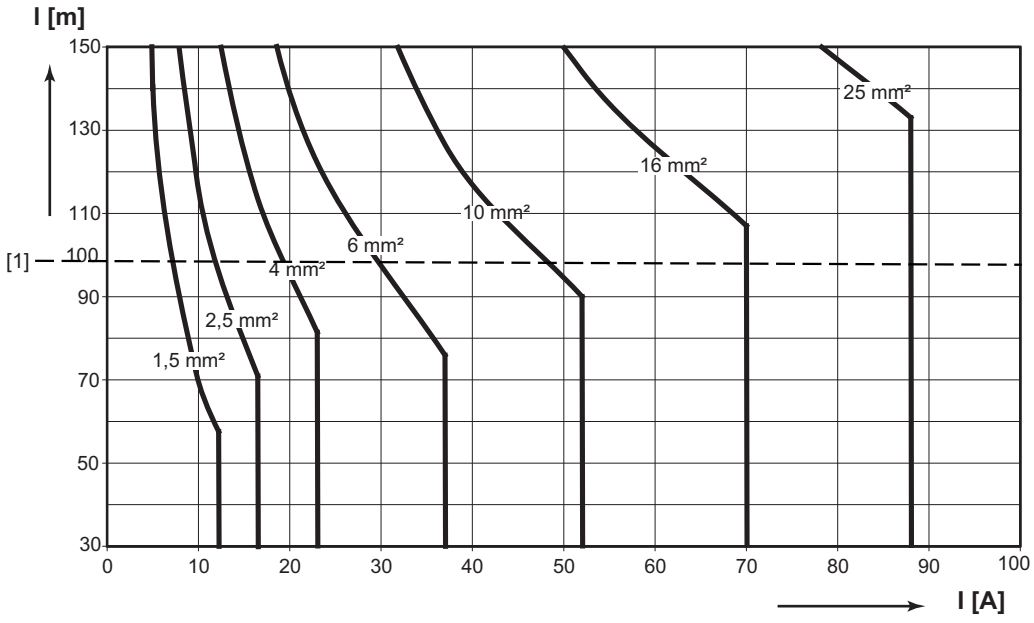



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*Figure 1: Required minimum cable cross-section depending on cable length l [m] and current I [A]*

[1] permitted maximum cable length to SEW specification = 100 m

The diagram (see above) is used as the basis for cable assignment (see following pages).

Hybrid cables with cross sections of 1.5 $mm^2$ to 10 $mm^2$ can be ordered from SEW-EURODRIVE.

***Cable load through current I in [A] according to EN 60204-1 table 5, ambient temperature 40 °C (104 °F)***

| Cable cross section [mm²] | Three-core sheathed cable in duct or cable [A] | Three-core sheathed cable on top of each other on wall [A] | Three-core sheathed cable next to each other [A] |
|---|---|---|---|
| 1,5 | 12,2 | 15,2 | 16,1 |
| 2,5 | 16,5 | 21,0 | 22 |
| 4 | 23 | 28,0 | 30 |
| 6 | 29 | 36,0 | 37 |
| 10 | 40 | 50,0 | 52 |
| 16 | 53 | 66,0 | 70 |
| 25 | 67 | 84,0 | 88 |
| 35 | 83 | 104,0 | 114 |

These data are merely recommended values and are **no substitute for detailed project planning** of the supply cables depending on the actual application, taking the applicable regulations into account!

## 6.2 TH winding thermostats

Thermal motor protection prevents the motor from overheating and consequently from being damaged. The TH has a triplet design, which means that each motor phase contains a thermostat NC contact. These are connected in series.

The thermostats are connected in series and open when the permitted winding temperature is exceeded. They can be connected in the drive monitoring loop.

## 6.3 Safety notes

***EMC measures***

The designated use of SEW-EURODRIVE synchronous linear motors is as components for installation in machinery and systems. The designer of the machine or system is responsible for complying with the EMC directive 2004/108/EC. For more detailed information on this subject, refer to the SEW publication:

**'Drive Engineering Practical Implementation, Volume 7, Project Planning for Drives' and in 'Drive Engineering Practical Implementation, Volume 9, EMC in Drive Engineering'.**

***Encoder connection***

Observe the following instructions when connecting an encoder:

- Use a shielded cable with twisted pair conductors only.
- Connect the shield to the PE potential on both ends over a large surface area.
- Install signal cables separately from power cables or brake cables (min. distance 200 mm [7.87 in]).

## 6.4 Electrical connection

### Cable assignment

*Power*

The cable cores are black with an additional white indication.

| Function | Color coding | Labeling |
|---|---|---|
| Phase U | Black (BK) | 1 |
| Phase V | Black (BK) | 2 |
| Phase W | Black (BK) | 3 |
| Protective earth | Black (BK) | 4 |

*Thermal motor protection*

| Function | Color coding | Labeling |
|---|---|---|
| TH1 | Black (BK) | 1 |
| TH2 | Black (BK) | 2 |

## 6.5 Electrical connection (with UL)

### Cable assignment

*Power*

The cables are provided with colored core identification.

| Function | Color coding | Labeling |
|---|---|---|
| Phase U | Black (BK) | - |
| Phase V | Brown (BN) | - |
| Phase W | Gray (GY) | - |
| Protective earth | Yellow/green (YE/GN) | - |

*Thermal motor protection*

| Function | Color coding | Labeling |
|---|---|---|
| TH1 | Brown (BN) | - |
| TH2 | Blue (BL) | - |
| Protective earth | Yellow/green (YE/GN) | - |

## 6.6 Prefabricated cables

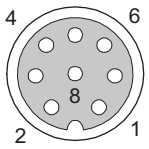
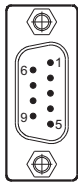
| | |
|---|---|
| | **INFORMATION**<br>The cables also have low capacitive characteristics for operation on the inverter. |

***NL16 feedback cable***

SEW-EURODRIVE does not offer a feedback cable for the linear measuring system. The cable must be pre-fabricated by the operator with an M12 actuator/sensor cable and a 15-pin SUB-D connector.

***Cable for NL16 encoder***

*Cable pin assignment for feedback cables*

| Encoder end | | | | Connection of MOVIDRIVE® MCV | |
|---|---|---|---|---|---|
| **Plug connector** | **Pin no.** | **Description** | **Description** | **Pin no.** | **Plug connector** |
| **12-pole with socket contacts**<br>  | 1 | A | A | 1 | **Sub-D 9-pin**<br>**MCV X15**<br>  |
| | 2 | B | B | 2 | |
| | 3 | C | C | 3 | |
| | 4 | GND | GND | 5 | |
| | 5 | /A | /A | 6 | |
| | 6 | /B | /B | 7 | |
| | 7 | /C | /C | 8 | |
| | 8 | 24 V | 24 V | 9 | |
| | | n. c. | n. c. | 4 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# 7 Startup

**DANGER**

Danger of electric shock.

Severe or fatal injuries!

- When motors are powered from inverters, you must observe the wiring instructions issued by the inverter manufacturer. Observe the operating instructions for the inverter.

**STOP**

Improper startup may result in damages to the linear motor.

Possible damage to property

- Do closely observe the notes in this chapter.

- Never work in the travel range when the machine is switched on.
- Ensure free axis travel.
- Check the final positions.
- Check the linear measuring system prior to turning on the machine.
- Limit the maximum power in the inverter.
- Set the velocity limits in the inverter to small values.
- Strictly observe the safety notes in the individual chapters.

## *7.1 Prerequisites for startup*

***Before startup, make sure that:***

- The primary moves along the entire travel distance easily, without collisions and free from mechanical contact between the primary and secondary
- All connections have been made properly
- All protection devices have been installed correctly
- All motor protection devices are active
- The brake works correctly in hoists
- You have a MOVIDRIVE® MCV with the 0E or 5E special design
- There are no other sources of danger
- The MOVITOOLS® startup software is installed on your PC.

## 7.2 Parameter set loaded at the factory

The MOVIDRIVE® MCV special design 0E includes a special parameter set loaded at the factory and a firmware optimized for special mechanical tolerances. The H variables H123-H127 have been assigned special functions for this optimization. They are initialized with the following values (status 03/2009):

| H variables |
|---|
| H123 =1820 |
| H124 = 32716 |
| H125 = 10000 |
| H126 = 125 |
| H127 = 651 |

Please note that SEW-EURODRIVE does not give warranty nor assume liability for any malfunctions of the system resulting from parameters differing from the default setting.

As a rule, it is possible to reset the parameter set to the default setting via parameter 802 'Factory settings' or to change individual parameters.

The 5E special design is not delivered with uploaded parameter set, but with standard factory setting.

## 7.3 Startup procedure

***Parameterization***

1. Make sure that the 0E or 5E special design servo inverter is in controller inhibit mode or 24V operation mode.

2. Using the factory setting, perform a startup for a CM servomotor, for which the continuous static current corresponds to the sum of the rated currents of all SLC motors used in parallel on MOVIDRIVE. The following must also be set for startup:
   - Temperature sensor is not connected (the TH sensor must be evaluated separately in a PLC)
   - Torque control operating mode
   - Current limitation P303 to the total maximum current of all SLC motors.
   - Stiffness, controller parameters and ramp times are not in effect in torque control operating mode.

3. Terminate motor startup with download.

4. Set the current controller index 8663 according to the formula

   Index 8663 = L[mH] x rated unit current x MDX factor, where

| | | |
|---|---|---|
| | MDX factor | = 0.02 for MDX = size 0 |
| | | = 0.016 for MDX > size 0 |

5. Set the scale of the actual speed value (optional) to:

   P850 = 1, P851= 200, P852 = m/s. (1 m/s corresponds to 200 rpm)

   The setting does not have any effect on the functionality.

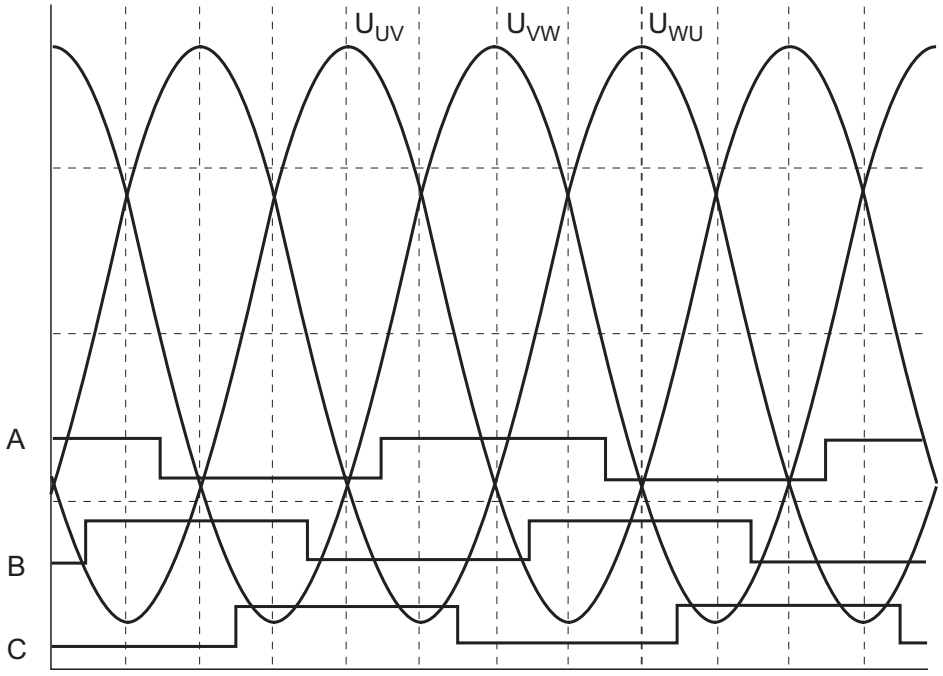
***Checking encoder evaluation***

Manually move the primary in one direction and observe parameter P003 (actual position) in MOVITOOLS Shell. Determine the positive direction of movement. Check that you measure 6 increments for a travel distance of 100 mm (3.94 in).

***Axle movement***

Check the limit switch is functioning correctly for axles with end limits. Move the axle with reduced torque setpoint.

If the axles do not move in a positive direction in a controlled manner when torque is in a positive direction of rotation, check that the correct motor phases have been assigned to the encoder signals. In extreme cases, you can push the motor in the positive direction and, using the oscilloscope, record the line voltage between U and V and the C track signal. The relationship between the two is shown in the following figure. The zero passage in the positive direction of the line voltage U-V must coincide with the rising edge of the C track. (Note: The motor does not perform any commutation travel.)

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# 8 Malfunctions

The servo inverter reports malfunctions depending on type via diagnostic LEDs or a 7-segment display and a fault code. Consult the system manual or the operating instructions of the respective MOVIDRIVE® for troubleshooting.

# 9 Inspection/Maintenance

## *9.1 Notes*

**DANGER**

**Danger of electric shock.**

Induced voltages of up to 500 V can be generated by movement of the primary (generator principle) even if the motor is not connected. Do not remove the protection cap on the power plug of the primary until immediately before connecting the power plug to the power supply.

Severe or fatal injuries.

- After separating the inverter from the supply voltage, wait for at least five minutes before you touch any live parts (e.g. contacts, thread bolts) or loosen connections. Measure the voltage on the DC link and wait until the voltage has dropped below 40 V.

**WARNING**

Touching the linear motors when they have not cooled down could result in burns. linear motors can have a surface temperature of over 100 °C.

Danger of burns

- Never touch the linear motor during operation or in the cool down phase once it has been switched off.

**STOP**

Improper inspection and maintenance may result in damages to the linear motor.

Possible damage to property

- Observe the following notes.

- Keep motor area free from chips.
- Listen out for and note any noises.
- Power connections can conduct voltages even if the motor is not turning. Never disconnect electrical connections of motors while they are energized.
- Wear work gloves when carrying out maintenance and repair work.
- Ensure safe disconnection from the voltage supply before working on the machine.
- Never work in the travel range when the machine is switched on.
- Remove any chips from the motor area on a regular basis.
- Use only genuine spare parts in accordance with the valid parts list.
- Motors can become very hot during operation - danger of burns!
- Disconnect the linear motor from the power supply before starting work and protect it against unintentional re-start.

## *9.2 General maintenance work*

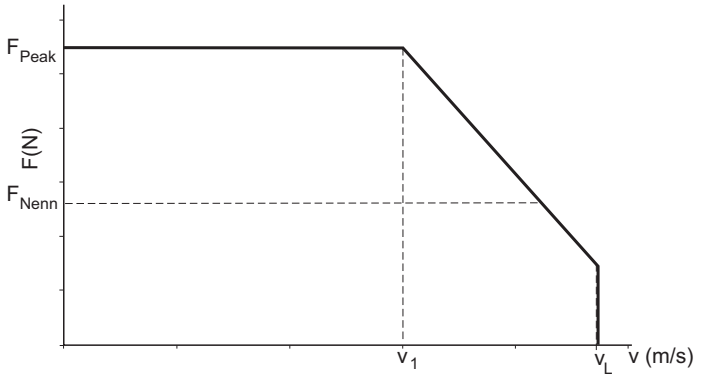
The primaries and secondaries are maintenance-free and cannot be repaired. Replace defective parts.

Remove any traces of dirt, chips, dust, etc. from the secondaries with a soft cloth.

Note that mobile cables are subject to wear. They have to be checked for external changes on a regular basis.

# 10 Technical Data

## 10.1 Motor data

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[1] = Dynamic limit forces
[2] = Thermal limit forces
$F_{nominal}$ = Permanent force
**when mounting to a horizontal aluminum cooling surface with**
- **four times primary flange surface**
- **10 mm thickness**
- **up to an ambient temperature of 40 °C**
- **an installation altitude of up to 1000 m**

$F_{Peak}$ = Maximum force
$v_L$ = Theoretical maximum traveling velocity
$v_1$ = Velocity up to which force $F_1$ is available
$I_{nominal}$ = Rated current
$I_{Peak}$ = Maximum current
$F_D$ = Force through magnetic attraction for 4.5 mm nominal clearance

| Motor type[1)] | Force | | | Velocity | | Current | | Cable cross section | Phase inductance | Resistance |
|---|---|---|---|---|---|---|---|---|---|---|
| | $F_{Peak}$ | $F_{nominal}$ | $F_D$ | $v_1$ | $v_L$ | $I_{Peak}$ | $I_{nominal}$ | | | |
| | [N] | [N] | [N] | [m/s] | [m/s] | [A] | [A] | [mm] | [mH] | [Ω] |
| **SLC-050M** | 400 | 200 | 480 | 2.5 | 5.0 | 4.7 | 2.35 | 3 x 1.5 | 162 | 13 |

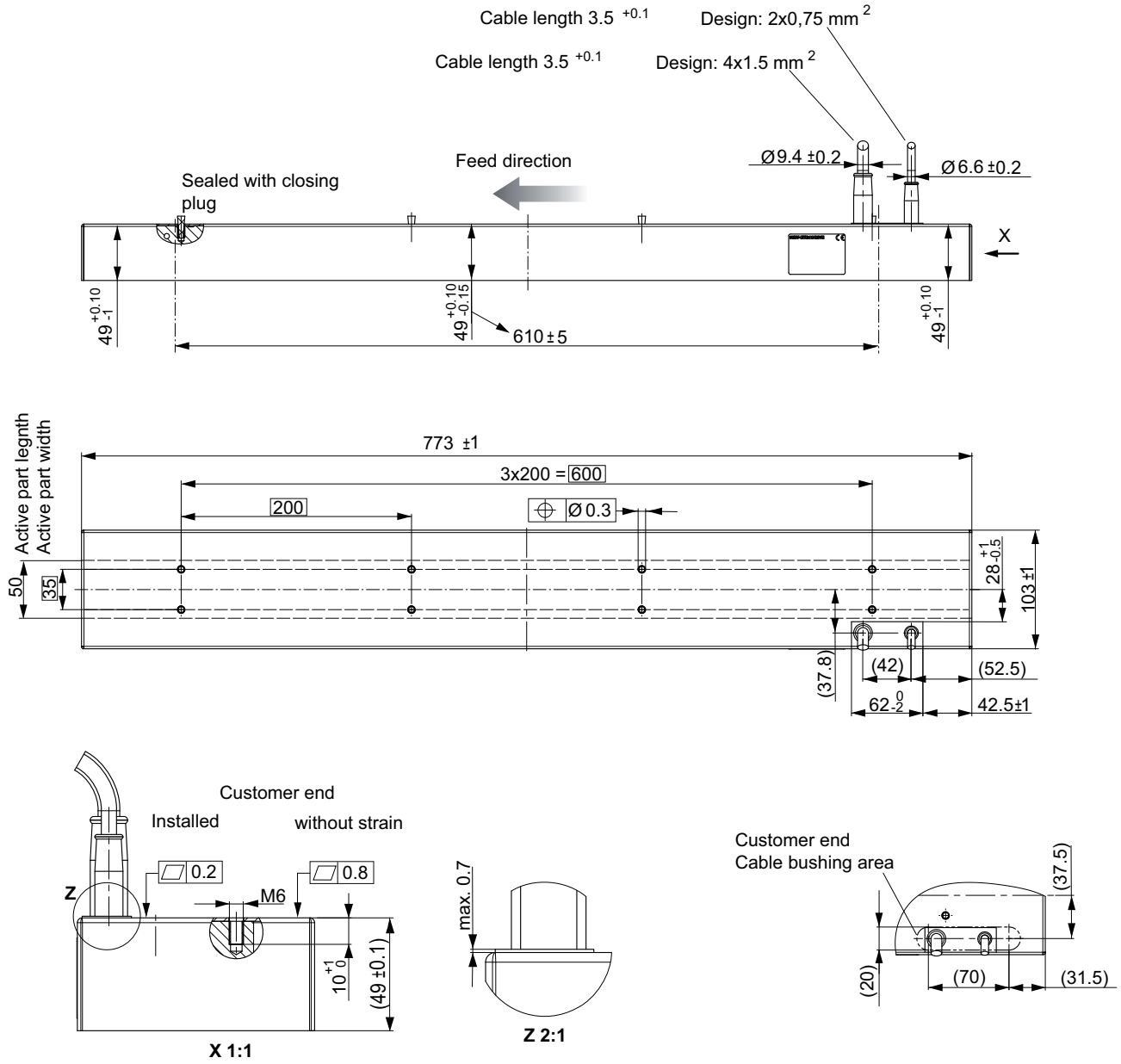
1) All values are string values (50% of the value measured between 2 phases)

Electrical values refer to sine-shaped commutation and are indicated as effective values or refer to them.

## 10.2 Dimensions

| | |
|---|---|
| | **INFORMATION**<br>For installation dimensions of primaries with UL approval, refer to the next page. |

***Primary***

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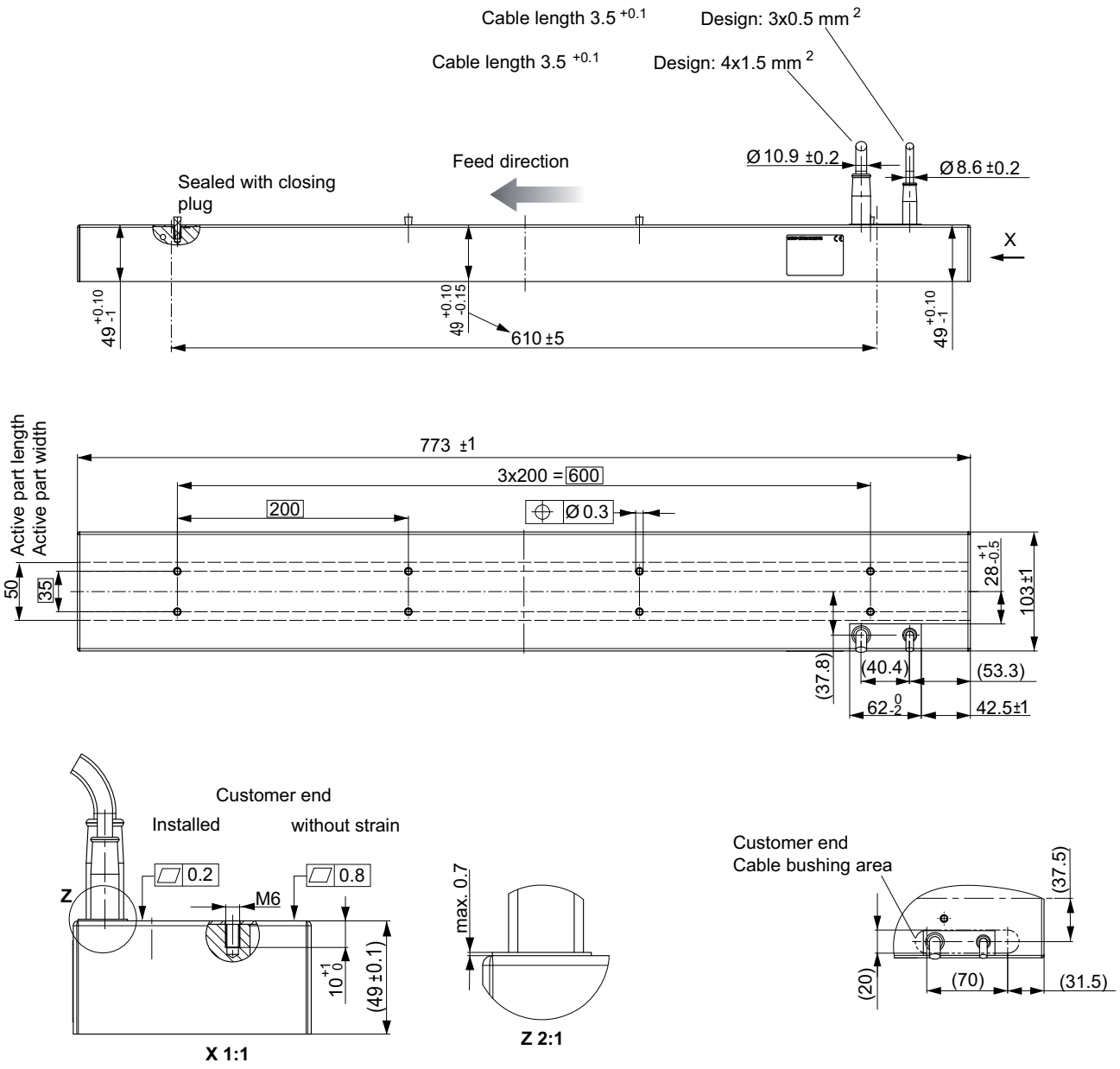
***Primary (with UL)***

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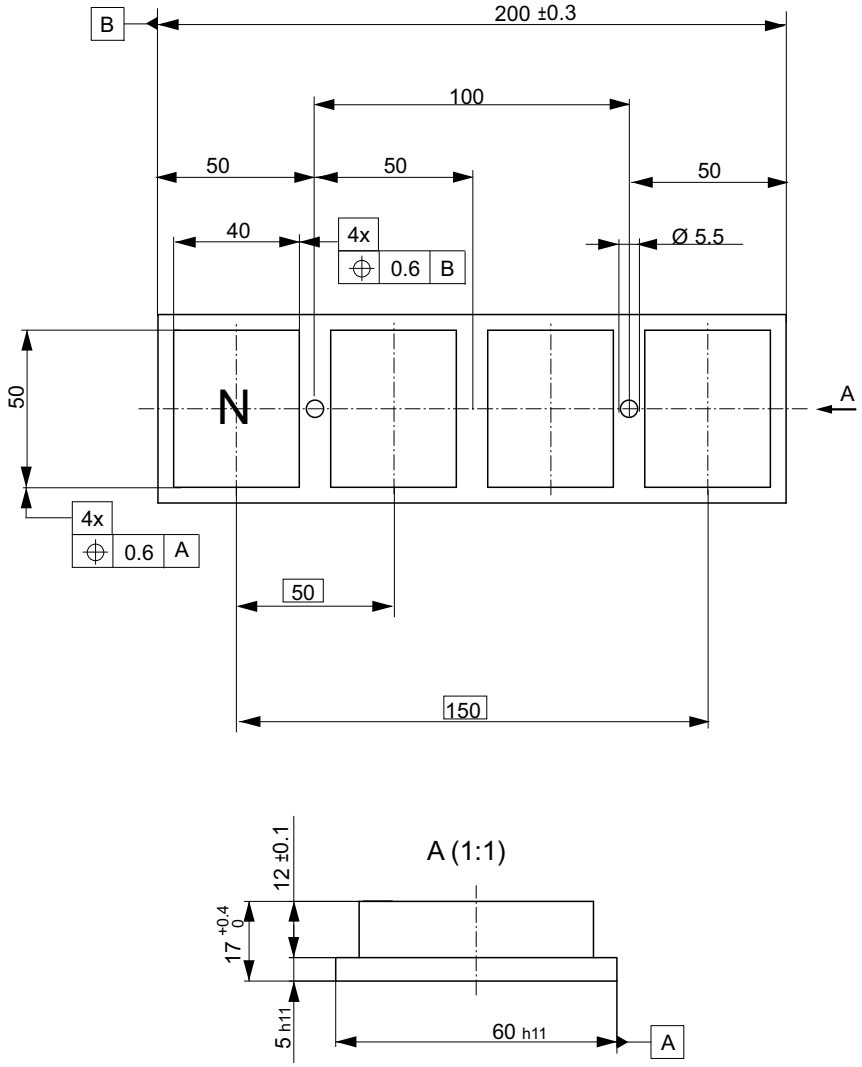
***Length of the secondary 200***

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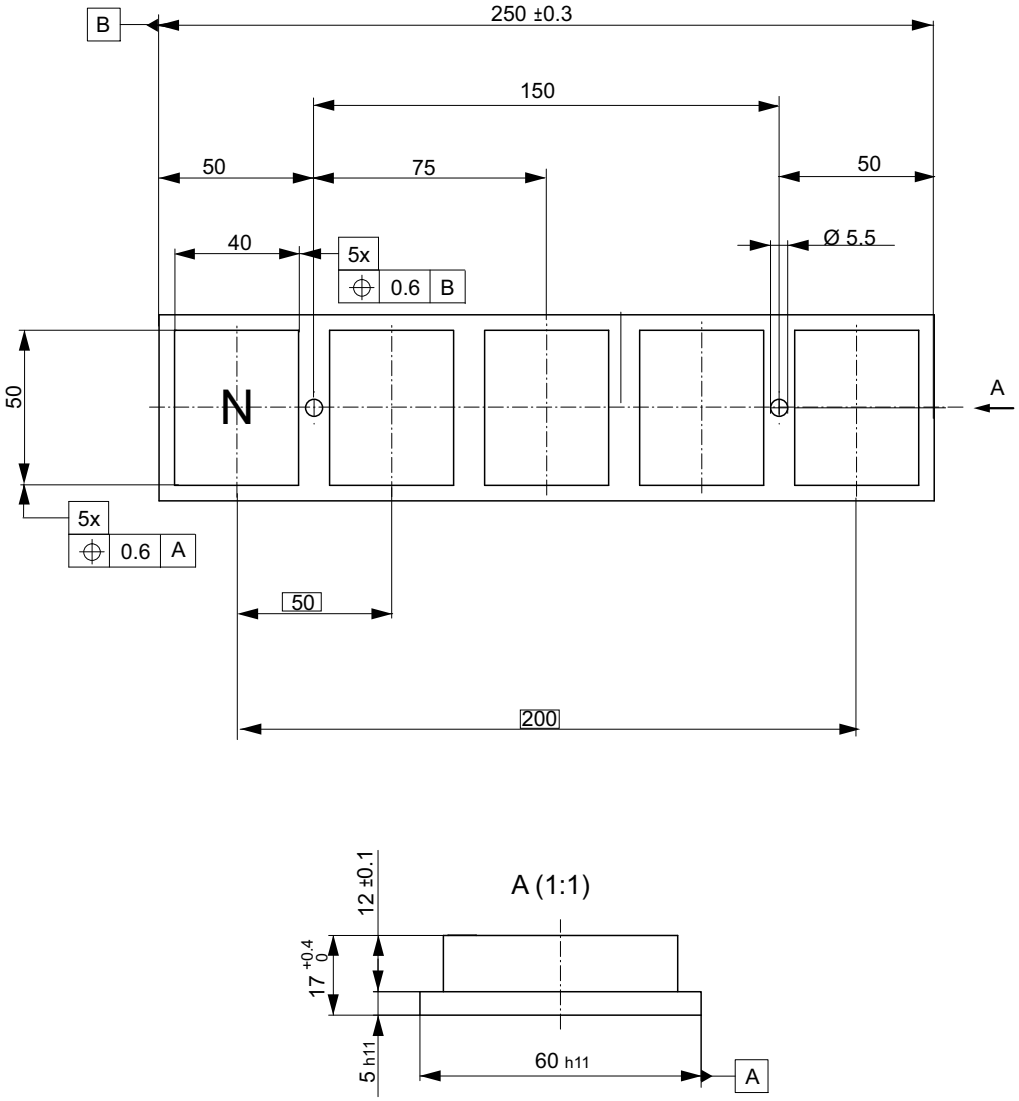
***Length of the secondary 250***

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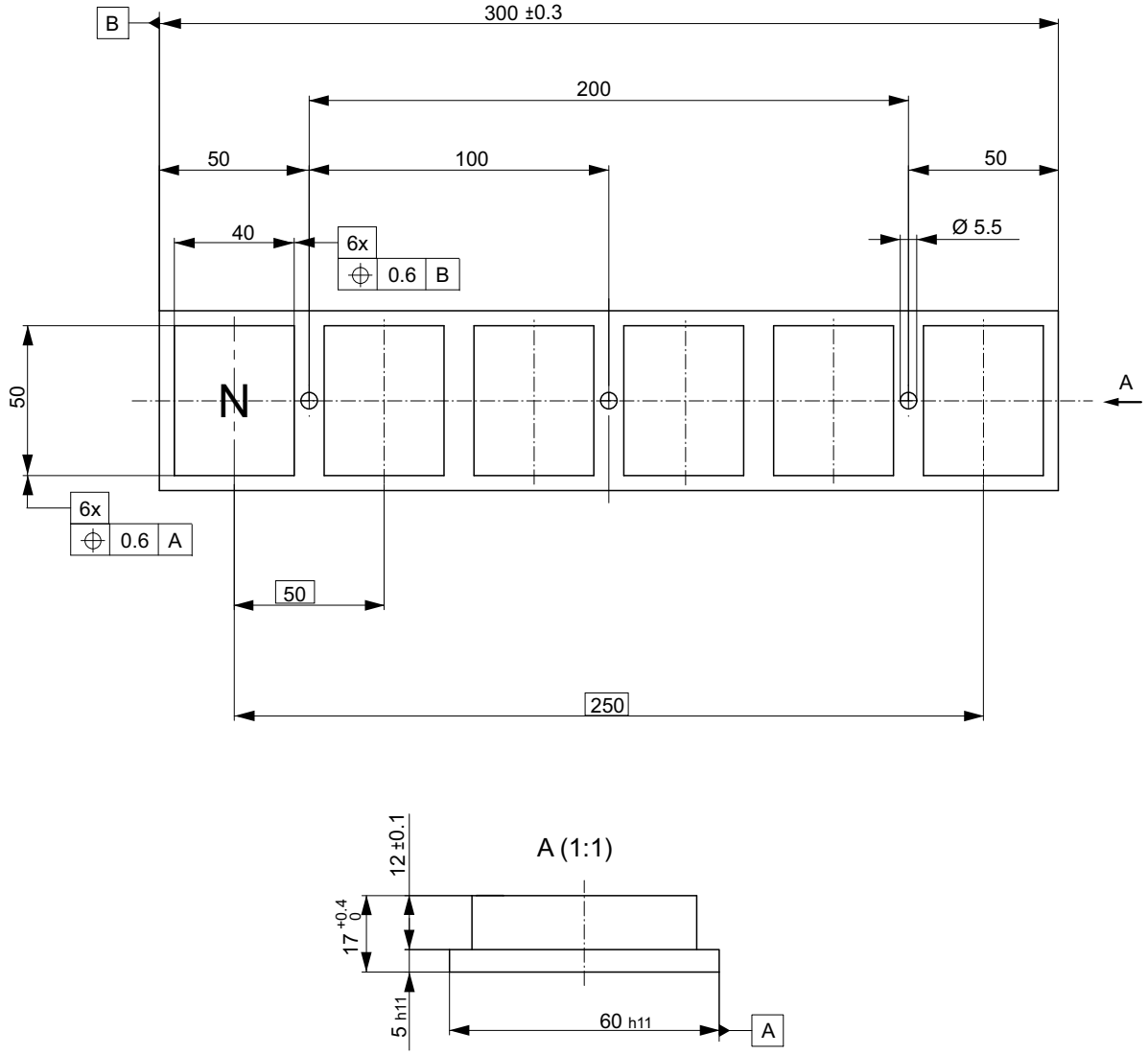
***Length of the secondary 300***

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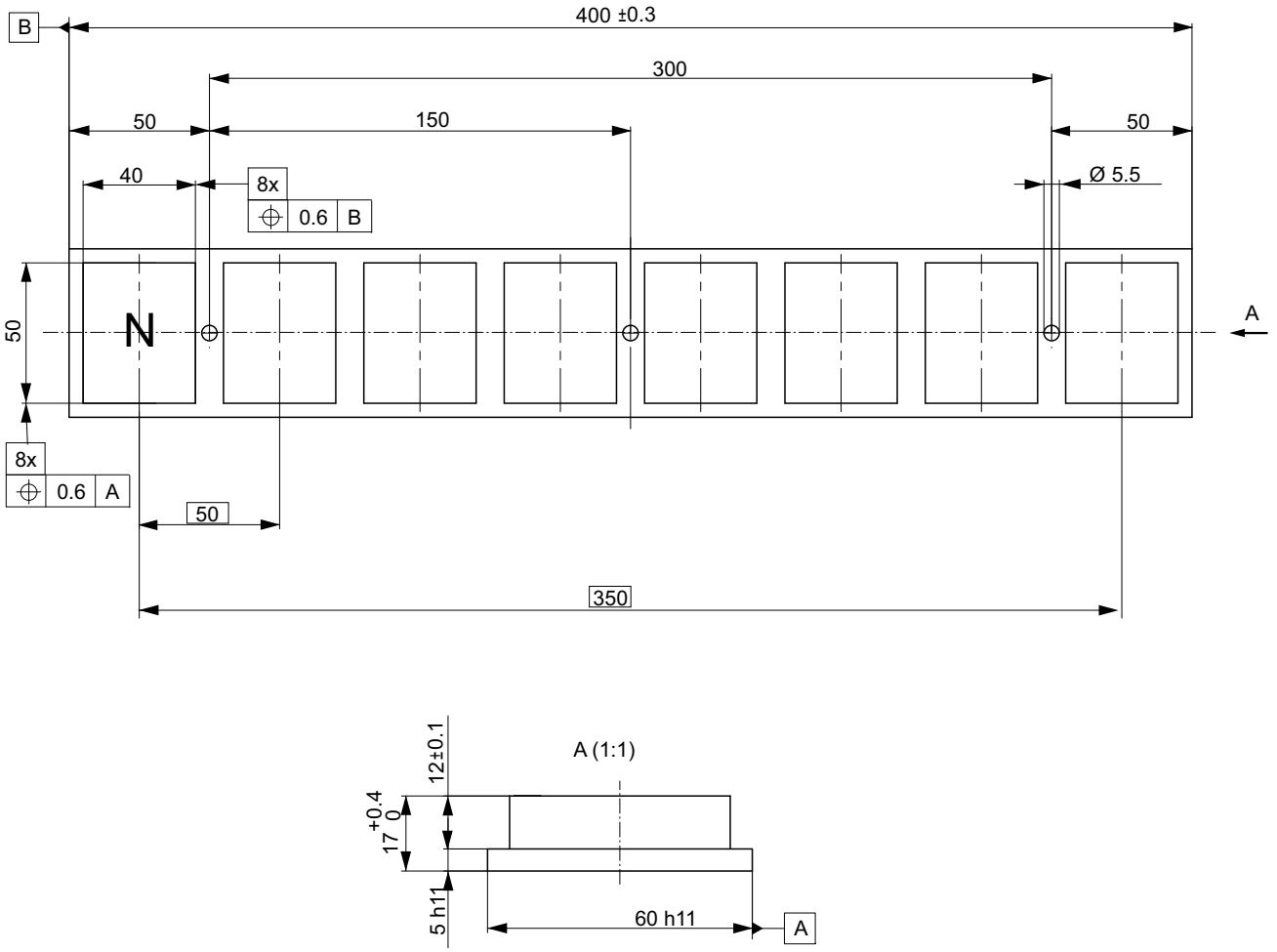
***Length of the secondary 400***







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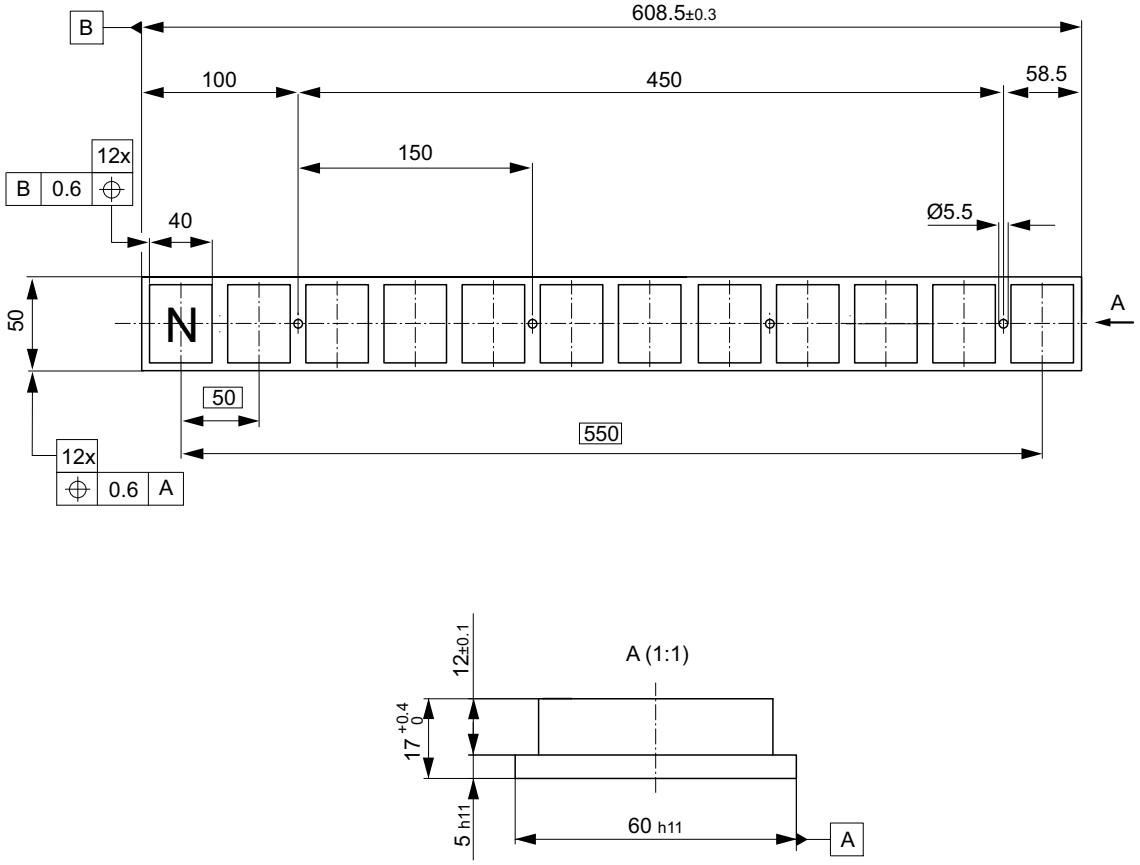
***Length of the secondary 608,5***

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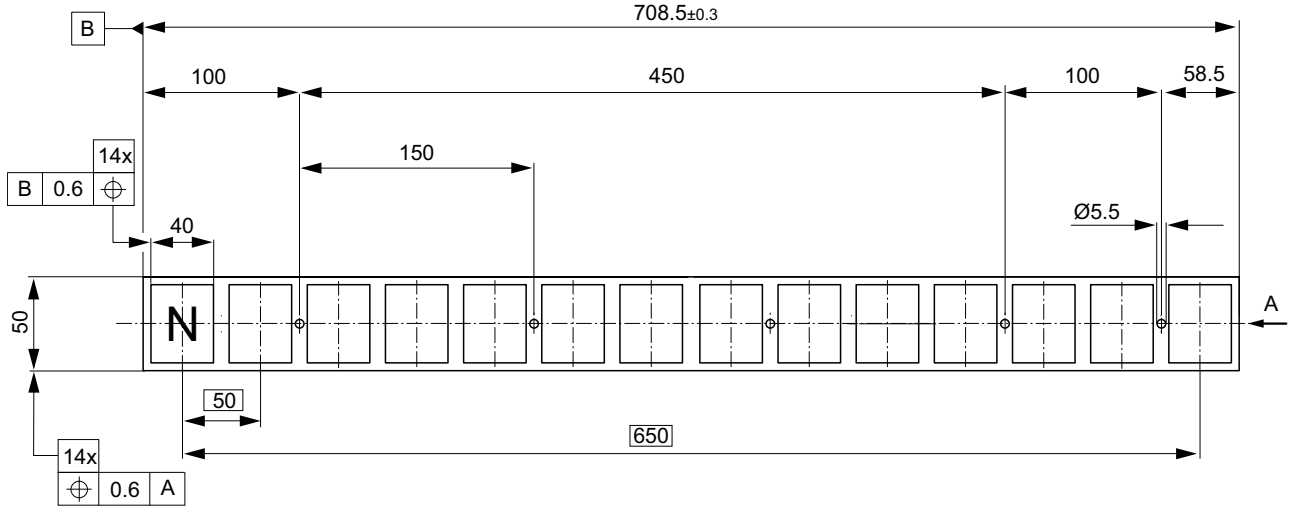
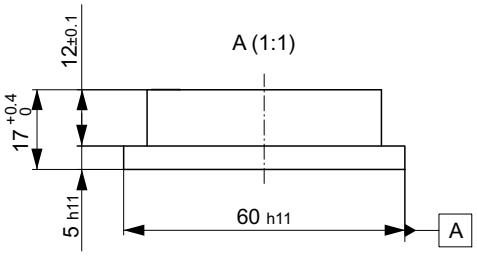
***Length of the secondary 708,5***

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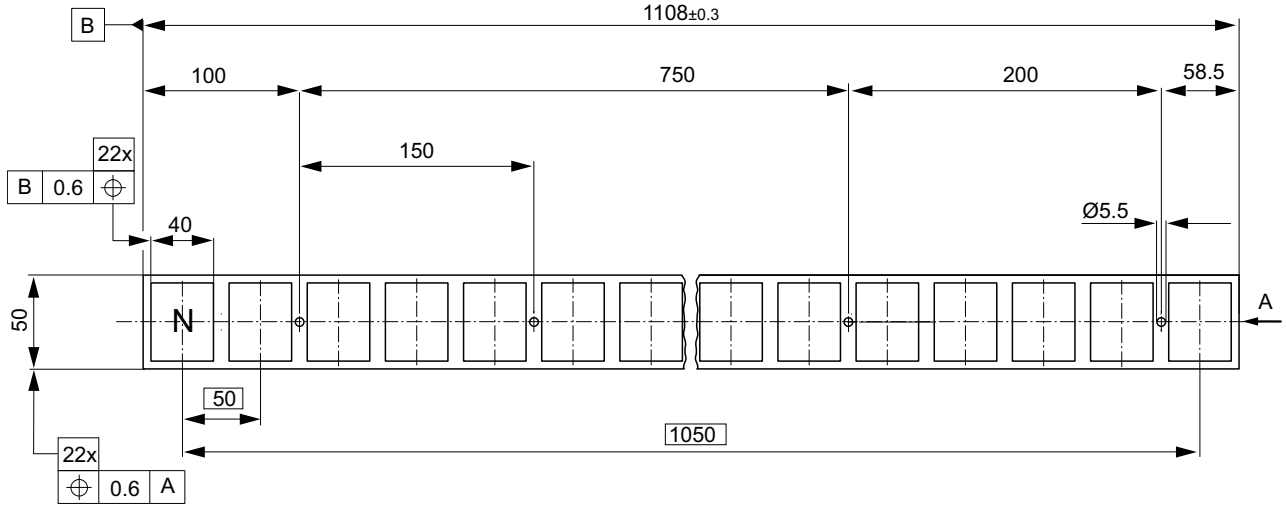
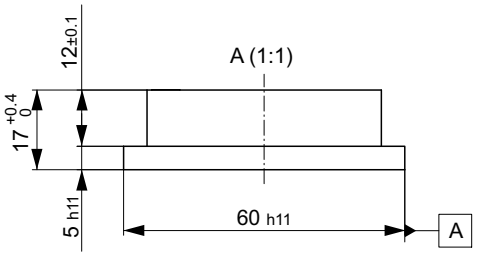
***Length of the secondary 1108,5***

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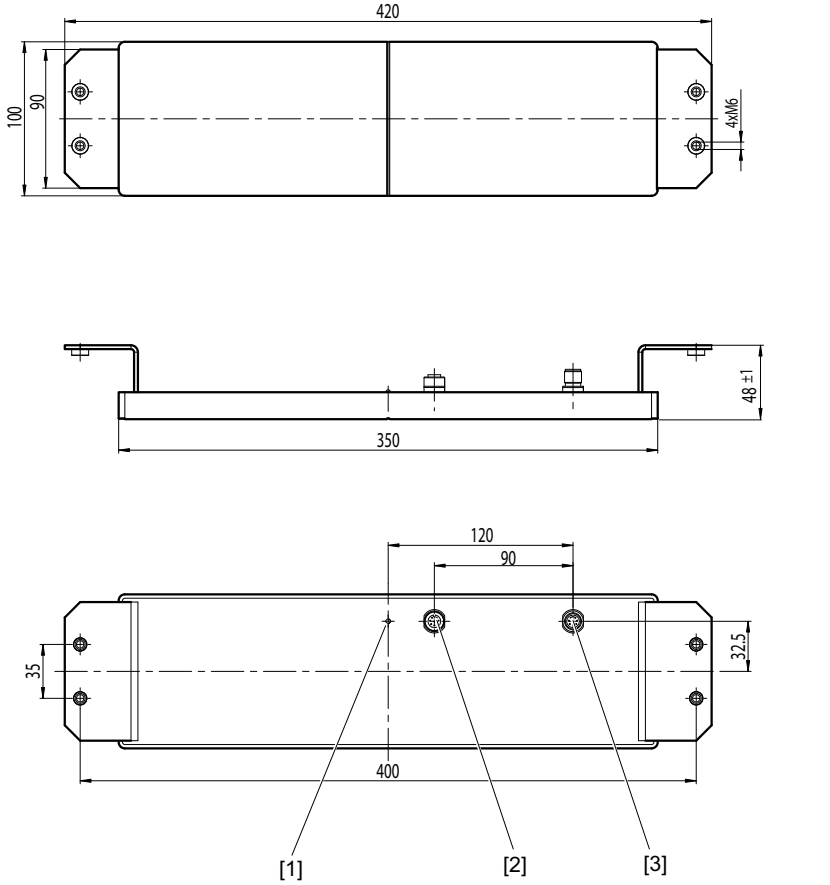
## 10.3 NL16 measuring system technical data

| General data | |
|---|---|
| **Absolute accuracy** | 1 mm |
| **Mass** | 0,9 κγ |
| **Ambient temperature** | 0 °X ... 50 °X |
| **Storage temperature** | -25 °C ... 75 °C |
| **Max. cable length** | 100 m |

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[1] Status LED

- Green: Normal mode
- yellow: Normal operation - with magnet missing
- red: Error in the commutation signal (e.g. no magnet or gap too large, incorrect distance between magnets)

[2] SEW-internal programming interface (not always provided) (socket)

[3] Encoder connection (pins)

# 11 Address List

| Germany | | | |
|---|---|---|---|
| **Headquarters**<br>**Production**<br>**Sales** | **Bruchsal** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 42<br>D-76646 Bruchsal<br>P.O. Box<br>Postfach 3023 • D-76642 Bruchsal | Tel. +49 7251 75-0<br>Fax +49 7251 75-1970<br>http://www.sew-eurodrive.de<br>sew@sew-eurodrive.de |
| **Production / Industrial Gears** | **Bruchsal** | SEW-EURODRIVE GmbH & Co KG<br>Christian-Pähr-Str.10<br>D-76646 Bruchsal | Tel. +49 7251 75-0<br>Fax +49 7251 75-2970 |
| **Service Competence Center** | **Central** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 1<br>D-76676 Graben-Neudorf | Tel. +49 7251 75-1710<br>Fax +49 7251 75-1711<br>sc-mitte@sew-eurodrive.de |
| | **North** | SEW-EURODRIVE GmbH & Co KG<br>Alte Ricklinger Straße 40-42<br>D-30823 Garbsen (near Hannover) | Tel. +49 5137 8798-30<br>Fax +49 5137 8798-55<br>sc-nord@sew-eurodrive.de |
| | **East** | SEW-EURODRIVE GmbH & Co KG<br>Dänkritzer Weg 1<br>D-08393 Meerane (near Zwickau) | Tel. +49 3764 7606-0<br>Fax +49 3764 7606-30<br>sc-ost@sew-eurodrive.de |
| | **South** | SEW-EURODRIVE GmbH & Co KG<br>Domagkstraße 5<br>D-85551 Kirchheim (near München) | Tel. +49 89 909552-10<br>Fax +49 89 909552-50<br>sc-sued@sew-eurodrive.de |
| | **West** | SEW-EURODRIVE GmbH & Co KG<br>Siemensstraße 1<br>D-40764 Langenfeld (near Düsseldorf) | Tel. +49 2173 8507-30<br>Fax +49 2173 8507-55<br>sc-west@sew-eurodrive.de |
| | **Electronics** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 42<br>D-76646 Bruchsal | Tel. +49 7251 75-1780<br>Fax +49 7251 75-1769<br>sc-elektronik@sew-eurodrive.de |
| | **Drive Service Hotline / 24 Hour Service** | | +49 180 5 SEWHELP<br>+49 180 5 7394357<br>14 euro cents/min on the German landline network. Max 42 euro cents/ min from a German mobile network. Prices for mobile and international calls may differ. |
| | Additional addresses for service in Germany provided on request! | | |

| France | | | |
|---|---|---|---|
| **Production**<br>**Sales**<br>**Service** | **Haguenau** | SEW-USOCOME<br>48-54 route de Soufflenheim<br>B. P. 20185<br>F-67506 Haguenau Cedex | Tel. +33 3 88 73 67 00<br>Fax +33 3 88 73 66 00<br>http://www.usocome.com<br>sew@usocome.com |
| **Production** | **Forbach** | SEW-USOCOME<br>Zone industrielle<br>Technopôle Forbach Sud<br>B. P. 30269<br>F-57604 Forbach Cedex | Tel. +33 3 87 29 38 00 |
| **Assembly**<br>**Sales**<br>**Service** | **Bordeaux** | SEW-USOCOME<br>Parc d'activités de Magellan<br>62 avenue de Magellan - B. P. 182<br>F-33607 Pessac Cedex | Tel. +33 5 57 26 39 00<br>Fax +33 5 57 26 39 09 |
| | **Lyon** | SEW-USOCOME<br>Parc d'affaires Roosevelt<br>Rue Jacques Tati<br>F-69120 Vaulx en Velin | Tel. +33 4 72 15 37 00<br>Fax +33 4 72 15 37 15 |

| | | | |
|---|---|---|---|
| **France** | | | |
| | **Nantes** | SEW-USOCOME<br>Parc d'activités de la forêt<br>4 rue des Fontenelles<br>F-44140 Le Bignon | Tel. +33 2 40 78 42 00<br>Fax +33 2 40 78 42 20 |
| | **Paris** | SEW-USOCOME<br>Zone industrielle<br>2 rue Denis Papin<br>F-77390 Verneuil l'Etang | Tel. +33 1 64 42 40 80<br>Fax +33 1 64 42 40 88 |
| | Additional addresses for service in France provided on request! | | |
| **Algeria** | | | |
| **Sales** | **Alger** | REDUCOM Sarl<br>16, rue des Frères Zaghnoune<br>Bellevue<br>16200 El Harrach Alger | Tel. +213 21 8214-91<br>Fax +213 21 8222-84<br>info@reducom-dz.com<br>http://www.reducom-dz.com |
| **Argentina** | | | |
| **Assembly**<br>**Sales** | **Buenos Aires** | SEW EURODRIVE ARGENTINA S.A.<br>Centro Industrial Garin, Lote 35<br>Ruta Panamericana Km 37,5<br>1619 Garin | Tel. +54 3327 4572-84<br>Fax +54 3327 4572-21<br>sewar@sew-eurodrive.com.ar<br>http://www.sew-eurodrive.com.ar |
| **Australia** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **Melbourne** | SEW-EURODRIVE PTY. LTD.<br>27 Beverage Drive<br>Tullamarine, Victoria 3043 | Tel. +61 3 9933-1000<br>Fax +61 3 9933-1003<br>http://www.sew-eurodrive.com.au<br>enquires@sew-eurodrive.com.au |
| | **Sydney** | SEW-EURODRIVE PTY. LTD.<br>9, Sleigh Place, Wetherill Park<br>New South Wales, 2164 | Tel. +61 2 9725-9900<br>Fax +61 2 9725-9905<br>enquires@sew-eurodrive.com.au |
| **Austria** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **Wien** | SEW-EURODRIVE Ges.m.b.H.<br>Richard-Strauss-Strasse 24<br>A-1230 Wien | Tel. +43 1 617 55 00-0<br>Fax +43 1 617 55 00-30<br>http://www.sew-eurodrive.at<br>sew@sew-eurodrive.at |
| **Belarus** | | | |
| **Sales** | **Minsk** | SEW-EURODRIVE BY<br>RybalkoStr. 26<br>BY-220033 Minsk | Tel.+375 17 298 47 56 / 298 47 58<br>Fax +375 17 298 47 54<br>http://www.sew.by<br>sales@sew.by |
| **Belgium** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **Brussels** | **SEW-EURODRIVE n.v./s.a.**<br>Researchpark Haasrode 1060<br>Evenementenlaan 7<br>BE-3001 Leuven | Tel. +32 16 386-311<br>Fax +32 16 386-336<br>http://www.sew-eurodrive.be<br>info@sew-eurodrive.be |
| **Service Competence Center** | **Industrial Gears** | **SEW-EURODRIVE n.v./s.a.**<br>Rue de Parc Industriel, 31<br>BE-6900 Marche-en-Famenne | Tel. +32 84 219-878<br>Fax +32 84 219-879<br>http://www.sew-eurodrive.be<br>service-wallonie@sew-eurodrive.be |
| **Brazil** | | | |
| **Production**<br>**Sales**<br>**Service** | **Sao Paulo** | SEW-EURODRIVE Brasil Ltda.<br>Avenida Amâncio Gaiolli, 152 - Rodovia Presidente Dutra Km 208<br>Guarulhos - 07251-250 - SP<br>SAT - SEW ATENDE - 0800 7700496 | Tel. +55 11 2489-9133<br>Fax +55 11 2480-3328<br>http://www.sew-eurodrive.com.br<br>sew@sew.com.br |

| Bulgaria | | | |
|---|---|---|---|
| **Sales** | **Sofia** | BEVER-DRIVE GmbH<br>Bogdanovetz Str.1<br>BG-1606 Sofia | Tel. +359 2 9151160<br>Fax +359 2 9151166<br>bever@bever.bg |

| Cameroon | | | |
|---|---|---|---|
| **Sales** | **Douala** | Electro-Services<br>Rue Drouot Akwa<br>B.P. 2024<br>Douala | Tel. +237 33 431137<br>Fax +237 33 431137<br>electrojemba@yahoo.fr |

| Canada | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Toronto** | SEW-EURODRIVE CO. OF CANADA LTD.<br>210 Walker Drive<br>Bramalea, ON L6T 3W1 | Tel. +1 905 791-1553<br>Fax +1 905 791-2999<br>http://www.sew-eurodrive.ca<br>l.watson@sew-eurodrive.ca |
| | **Vancouver** | SEW-EURODRIVE CO. OF CANADA LTD.<br>Tilbury Industrial Park<br>7188 Honeyman Street<br>Delta, BC V4G 1G1 | Tel. +1 604 946-5535<br>Fax +1 604 946-2513<br>b.wake@sew-eurodrive.ca |
| | **Montreal** | SEW-EURODRIVE CO. OF CANADA LTD.<br>2555 Rue Leger<br>Lasalle, PQ H8N 2V9 | Tel. +1 514 367-1124<br>Fax +1 514 367-3677<br>a.peluso@sew-eurodrive.ca |
| | Additional addresses for service in Canada provided on request! | | |

| Chile | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Santiago de Chile** | SEW-EURODRIVE CHILE LTDA.<br>Las Encinas 1295<br>Parque Industrial Valle Grande<br>LAMPA<br>RCH-Santiago de Chile<br>P.O. Box<br>Casilla 23 Correo Quilicura - Santiago - Chile | Tel. +56 2 75770-00<br>Fax +56 2 75770-01<br>http://www.sew-eurodrive.cl<br>ventas@sew-eurodrive.cl |

| China | | | |
|---|---|---|---|
| **Production**<br>**Assembly**<br>**Sales**<br>**Service** | **Tianjin** | SEW-EURODRIVE (Tianjin) Co., Ltd.<br>No. 46, 7th Avenue, TEDA<br>Tianjin 300457 | Tel. +86 22 25322612<br>Fax +86 22 25323273<br>info@sew-eurodrive.cn<br>http://www.sew-eurodrive.com.cn |
| **Assembly**<br>**Sales**<br>**Service** | **Suzhou** | SEW-EURODRIVE (Suzhou) Co., Ltd.<br>333, Suhong Middle Road<br>Suzhou Industrial Park<br>Jiangsu Province, 215021 | Tel. +86 512 62581781<br>Fax +86 512 62581783<br>suzhou@sew-eurodrive.cn |
| | **Guangzhou** | SEW-EURODRIVE (Guangzhou) Co., Ltd.<br>No. 9, JunDa Road<br>East Section of GETDD<br>Guangzhou 510530 | Tel. +86 20 82267890<br>Fax +86 20 82267922<br>guangzhou@sew-eurodrive.cn |
| | **Shenyang** | SEW-EURODRIVE (Shenyang) Co., Ltd.<br>10A-2, 6th Road<br>Shenyang Economic Technological Development Area<br>Shenyang, 110141 | Tel. +86 24 25382538<br>Fax +86 24 25382580<br>shenyang@sew-eurodrive.cn |
| | **Wuhan** | SEW-EURODRIVE (Wuhan) Co., Ltd.<br>10A-2, 6th Road<br>No. 59, the 4th Quanli Road, WEDA<br>430056 Wuhan | Tel. +86 27 84478388<br>Fax +86 27 84478389<br>wuhan@sew-eurodrive.cn |

| China | | | |
|---|---|---|---|
| | **Xi'An** | SEW-EURODRIVE (Xi'An) Co., Ltd.<br>No. 12 Jinye 2nd Road<br>Xi'An High-Technology Industrial Development Zone<br>Xi'An 710065 | Tel. +86 29 68686262<br>Fax +86 29 68686311<br>xian@sew-eurodrive.cn |
| | Additional addresses for service in China provided on request! | | |

| Colombia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Bogotá** | SEW-EURODRIVE COLOMBIA LTDA.<br>Calle 22 No. 132-60<br>Bodega 6, Manzana B<br>Santafé de Bogotá | Tel. +57 1 54750-50<br>Fax +57 1 54750-44<br>http://www.sew-eurodrive.com.co<br>sewcol@sew-eurodrive.com.co |

| Croatia | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Zagreb** | KOMPEKS d. o. o.<br>Zeleni dol 10<br>HR 10 000 Zagreb | Tel. +385 1 4613-158<br>Fax +385 1 4613-158<br>kompeks@inet.hr |

| Czech Republic | | | |
|---|---|---|---|
| **Sales** | **Prague** | SEW-EURODRIVE CZ S.R.O.<br>Business Centrum Praha<br>Lužná 591<br>CZ-16000 Praha 6 - Vokovice | Tel. +420 255 709 601<br>Fax +420 220 121 237<br>http://www.sew-eurodrive.cz<br>sew@sew-eurodrive.cz |

| Denmark | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Copenhagen** | SEW-EURODRIVEA/S<br>Geminivej 28-30<br>DK-2670 Greve | Tel. +45 43 9585-00<br>Fax +45 43 9585-09<br>http://www.sew-eurodrive.dk<br>sew@sew-eurodrive.dk |

| Egypt | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Cairo** | Copam Egypt<br>for Engineering & Agencies<br>33 El Hegaz ST, Heliopolis, Cairo | Tel. +20 2 22566-299 +1 23143088<br>Fax +20 2 22594-757<br>http://www.copam-egypt.com/<br>copam@datum.com.eg |

| Estonia | | | |
|---|---|---|---|
| **Sales** | **Tallin** | ALAS-KUUL AS<br>Reti tee 4<br>EE-75301 Peetri küla, Rae vald, Harjumaa | Tel. +372 6593230<br>Fax +372 6593231<br>veiko.soots@alas-kuul.ee |

| Finland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Lahti** | SEW-EURODRIVE OY<br>Vesimäentie 4<br>FIN-15860 Hollola 2 | Tel. +358 201 589-300<br>Fax +358 3 780-6211<br>http://www.sew-eurodrive.fi<br>sew@sew.fi |
| **Production**<br>**Assembly** | **Karkkila** | SEW Industrial Gears Oy<br>Valurinkatu 6, PL 8<br>FI-03600 Karkkila, 03601 Karkkila | Tel. +358 201 589-300<br>Fax +358 201 589-310<br>sew@sew.fi<br>http://www.sew-eurodrive.fi |

| Gabon | | | |
|---|---|---|---|
| **Sales** | **Libreville** | ESG Electro Services Gabun<br>Feu Rouge Lalala<br>1889 Libreville<br>Gabun | Tel. +241 741059<br>Fax +241 741059<br>esg_services@yahoo.fr |

| Great Britain | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Normanton** | SEW-EURODRIVE Ltd.<br>Beckbridge Industrial Estate<br>Normanton<br>West Yorkshire<br>WF6 1QR | Tel. +44 1924 893-855<br>Fax +44 1924 893-702<br>http://www.sew-eurodrive.co.uk<br>info@sew-eurodrive.co.uk |
| | **Drive Service Hotline / 24 Hour Service** | | Tel. 01924 896911 |

| Greece | | | |
|---|---|---|---|
| **Sales** | **Athens** | Christ. Boznos & Son S.A.<br>12, K. Mavromichali Street<br>P.O. Box 80136<br>GR-18545 Piraeus | Tel. +30 2 1042 251-34<br>Fax +30 2 1042 251-59<br>http://www.boznos.gr<br>info@boznos.gr |

| Hong Kong | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Hong Kong** | SEW-EURODRIVE LTD.<br>Unit No. 801-806, 8th Floor<br>Hong Leong Industrial Complex<br>No. 4, Wang Kwong Road<br>Kowloon, Hong Kong | Tel. +852 36902200<br>Fax +852 36902211<br>contact@sew-eurodrive.hk |

| Hungary | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Budapest** | SEW-EURODRIVE Kft.<br>H-1037 Budapest<br>Kunigunda u. 18 | Tel. +36 1 437 06-58<br>Fax +36 1 437 06-50<br>office@sew-eurodrive.hu |

| India | | | |
|---|---|---|---|
| **Registered Office**<br>**Assembly**<br>**Sales**<br>**Service** | **Vadodara** | SEW-EURODRIVE India Private Limited<br>Plot No. 4, GIDC<br>POR Ramangamdi • Vadodara - 391 243<br>Gujarat | Tel. +91 265 3045200, +91 265 2831086<br>Fax +91 265 3045300, +91 265 2831087<br>http://www.seweurodriveindia.com<br>salesvadodara@seweurodriveindia.com |
| **Assembly**<br>**Sales**<br>**Service** | **Chennai** | SEW-EURODRIVE India Private Limited<br>Plot No. K3/1, Sipcot Industrial Park Phase II<br>Mambakkam Village<br>Sriperumbudur - 602105<br>Kancheepuram Dist, Tamil Nadu | Tel. +91 44 37188888<br>Fax +91 44 37188811<br>saleschennai@seweurodriveindia.com |

| Ireland | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Dublin** | Alperton Engineering Ltd.<br>48 Moyle Road<br>Dublin Industrial Estate<br>Glasnevin, Dublin 11 | Tel. +353 1 830-6277<br>Fax +353 1 830-6458<br>info@alperton.ie<br>http://www.alperton.ie |

| Israel | | | |
|---|---|---|---|
| **Sales** | **Tel-Aviv** | Liraz Handasa Ltd.<br>Ahofer Str 34B / 228<br>58858 Holon | Tel. +972 3 5599511<br>Fax +972 3 5599512<br>http://www.liraz-handasa.co.il<br>office@liraz-handasa.co.il |

| Italy | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Solaro** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Via Bernini,14<br>I-20020 Solaro (Milano) | Tel. +39 02 96 9801<br>Fax +39 02 96 799781<br>http://www.sew-eurodrive.it<br>sewit@sew-eurodrive.it |

| Ivory Coast | | | |
|---|---|---|---|
| **Sales** | **Abidjan** | SICA<br>Société industrielle & commerciale pour l'Afrique<br>165, Boulevard de Marseille<br>26 BP 1115 Abidjan 26 | Tel. +225 21 25 79 44<br>Fax +225 21 25 88 28<br>sicamot@aviso.ci |

| Japan | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Iwata** | SEW-EURODRIVE JAPAN CO., LTD<br>250-1, Shimoman-no,<br>Iwata<br>Shizuoka 438-0818 | Tel. +81 538 373811<br>Fax +81 538 373855<br>http://www.sew-eurodrive.co.jp<br>sewjapan@sew-eurodrive.co.jp |

| Kazakhstan | | | |
|---|---|---|---|
| **Sales** | **Almaty** | ТОО "СЕВ-ЕВРОДРАЙВ"<br>пр.Райымбека, 348<br>050061 г. Алматы<br>Республика Казахстан | Тел. +7 (727) 334 1880<br>Факс +7 (727) 334 1881<br>http://www.sew-eurodrive.kz<br>sew@sew-eurodrive.kz |

| Latvia | | | |
|---|---|---|---|
| **Sales** | **Riga** | SIA Alas-Kuul<br>Katlakalna 11C<br>LV-1073 Riga | Tel. +371 6 7139253<br>Fax +371 6 7139386<br>http://www.alas-kuul.com<br>info@alas-kuul.com |

| Lebanon | | | |
|---|---|---|---|
| **Sales** | **Beirut** | Gabriel Acar & Fils sarl<br>B. P. 80484<br>Bourj Hammoud, Beirut | Tel. +961 1 510 532<br>Fax +961 1 494 971<br>ssacar@inco.com.lb |
| Jordan<br>Kuwait<br>Saudi Arabia<br>Syria | **Beirut** | Middle East Drives S.A.L. (offshore)<br>Sin El Fil.<br>B. P. 55-378<br>Beirut | Tel. +961 1 494 786<br>Fax +961 1 494 971<br>info@medrives.com<br>http://www.medrives.com |

| Lithuania | | | |
|---|---|---|---|
| **Sales** | **Alytus** | UAB Irseva<br>Statybininku 106C<br>LT-63431 Alytus | Tel. +370 315 79204<br>Fax +370 315 56175<br>irmantas@irseva.lt<br>http://www.sew-eurodrive.lt |

| Luxembourg | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Brussels** | **SEW-EURODRIVE n.v./s.a.**<br>Researchpark Haasrode 1060<br>Evenementenlaan 7<br>BE-3001 Leuven | Tel. +32 16 386-311<br>Fax +32 16 386-336<br>http://www.sew-eurodrive.lu<br>info@sew-eurodrive.be |

| Malaysia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Johore** | SEW-EURODRIVE SDN BHD<br>No. 95, Jalan Seroja 39, Taman Johor Jaya<br>81000 Johor Bahru, Johor<br>West Malaysia | Tel. +60 7 3549409<br>Fax +60 7 3541404<br>sales@sew-eurodrive.com.my |

| Mexico | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Quéretaro** | SEW-EURODRIVE MEXICO SA DE CV<br>SEM-981118-M93<br>Tequisquiapan No. 102<br>Parque Industrial Quéretaro<br>C.P. 76220<br>Quéretaro, México | Tel. +52 442 1030-300<br>Fax +52 442 1030-301<br>http://www.sew-eurodrive.com.mx<br>scmexico@seweurodrive.com.mx |

| Morocco | | | |
|---|---|---|---|
| **Sales** | **Casablanca** | Afit<br>Route D'El Jadida<br>KM 14 RP8<br>Province de Nouaceur<br>Commune Rurale de Bouskoura<br>MA 20300 Casablanca | Tel. +212 522633700<br>Fax +212 522621588<br>fatima.haquiq@premium.net.ma<br>http://www.groupe-premium.com |

| Netherlands | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Rotterdam** | VECTOR Aandrijftechniek B.V.<br>Industrieweg 175<br>NL-3044 AS Rotterdam<br>Postbus 10085<br>NL-3004 AB Rotterdam | Tel. +31 10 4463-700<br>Fax +31 10 4155-552<br>http://www.sew-eurodrive.nl<br>info@sew-eurodrive.nl |

| New Zealand | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Auckland** | SEW-EURODRIVE NEW ZEALAND LTD.<br>P.O. Box 58-428<br>82 Greenmount drive<br>East Tamaki Auckland | Tel. +64 9 2745627<br>Fax +64 9 2740165<br>http://www.sew-eurodrive.co.nz<br>sales@sew-eurodrive.co.nz |
| | **Christchurch** | SEW-EURODRIVE NEW ZEALAND LTD.<br>10 Settlers Crescent, Ferrymead<br>Christchurch | Tel. +64 3 384-6251<br>Fax +64 3 384-6455<br>sales@sew-eurodrive.co.nz |

| Norway | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Moss** | SEW-EURODRIVE A/S<br>Solgaard skog 71<br>N-1599 Moss | Tel. +47 69 24 10 20<br>Fax +47 69 24 10 40<br>http://www.sew-eurodrive.no<br>sew@sew-eurodrive.no |

| Pakistan | | | |
|---|---|---|---|
| **Sales** | **Karachi** | Industrial Power Drives<br>Al-Fatah Chamber A/3, 1st Floor Central Commercial Area,<br>Sultan Ahmed Shah Road, Block 7/8,<br>Karachi | Tel. +92 21 452 9369<br>Fax +92-21-454 7365<br>seweurodrive@cyber.net.pk |

| Peru | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Lima** | SEW DEL PERU MOTORES REDUCTORES S.A.C.<br>Los Calderos, 120-124<br>Urbanizacion Industrial Vulcano, ATE, Lima | Tel. +51 1 3495280<br>Fax +51 1 3493002<br>http://www.sew-eurodrive.com.pe<br>sewperu@sew-eurodrive.com.pe |

| Poland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Lodz** | SEW-EURODRIVE Polska Sp.z.o.o.<br>ul. Techniczna 5<br>PL-92-518 Łódź | Tel. +48 42 676 53 00<br>Fax +48 42 676 53 49<br>http://www.sew-eurodrive.pl<br>sew@sew-eurodrive.pl |
| | **Service** | Tel. +48 42 6765332 / 42 6765343<br>Fax +48 42 6765346 | Linia serwisowa Hotline 24H<br>Tel. +48 602 739 739<br>(+48 602 SEW SEW)<br>serwis@sew-eurodrive.pl |

| Portugal | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Coimbra** | SEW-EURODRIVE, LDA.<br>Apartado 15<br>P-3050-901 Mealhada | Tel. +351 231 20 9670<br>Fax +351 231 20 3685<br>http://www.sew-eurodrive.pt<br>infosew@sew-eurodrive.pt |

| Romania | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Bucharest** | Sialco Trading SRL<br>str. Madrid nr.4<br>011785 Bucuresti | Tel. +40 21 230-1328<br>Fax +40 21 230-7170<br>sialco@sialco.ro |

| Russia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **St. Petersburg** | ZAO SEW-EURODRIVE<br>P.O. Box 36<br>195220 St. Petersburg Russia | Tel. +7 812 3332522 +7 812 5357142<br>Fax +7 812 3332523<br>http://www.sew-eurodrive.ru<br>sew@sew-eurodrive.ru |

| Senegal | | | |
|---|---|---|---|
| **Sales** | **Dakar** | SENEMECA<br>Mécanique Générale<br>Km 8, Route de Rufisque<br>B.P. 3251, Dakar | Tel. +221 338 494 770<br>Fax +221 338 494 771<br>senemeca@sentoo.sn<br>http://www.senemeca.com |

| Serbia | | | |
|---|---|---|---|
| **Sales** | **Beograd** | DIPAR d.o.o.<br>Ustanicka 128a<br>PC Košum, IV sprat<br>SRB-11000 Beograd | Tel. +381 11 347 3244 / +381 11 288 0393<br>Fax +381 11 347 1337<br>office@dipar.rs |

| Singapore | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Singapore** | SEW-EURODRIVE PTE. LTD.<br>No 9, Tuas Drive 2<br>Jurong Industrial Estate<br>Singapore 638644 | Tel. +65 68621701<br>Fax +65 68612827<br>http://www.sew-eurodrive.com.sg<br>sewsingapore@sew-eurodrive.com |

| Slovakia | | | |
|---|---|---|---|
| **Sales** | **Bratislava** | SEW-Eurodrive SK s.r.o.<br>Rybničná 40<br>SK-831 06 Bratislava | Tel. +421 2 33595 202<br>Fax +421 2 33595 200<br>sew@sew-eurodrive.sk<br>http://www.sew-eurodrive.sk |
| | **Žilina** | SEW-Eurodrive SK s.r.o.<br>Industry Park - PChZ<br>ulica M.R.Štefánika 71<br>SK-010 01 Žilina | Tel. +421 41 700 2513<br>Fax +421 41 700 2514<br>sew@sew-eurodrive.sk |
| | **Banská Bystrica** | SEW-Eurodrive SK s.r.o.<br>Rudlovská cesta 85<br>SK-974 11 Banská Bystrica | Tel. +421 48 414 6564<br>Fax +421 48 414 6566<br>sew@sew-eurodrive.sk |
| | **Košice** | SEW-Eurodrive SK s.r.o.<br>Slovenská ulica 26<br>SK-040 01 Košice | Tel. +421 55 671 2245<br>Fax +421 55 671 2254<br>sew@sew-eurodrive.sk |

| Slovenia | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Celje** | Pakman - Pogonska Tehnika d.o.o.<br>UI. XIV. divizije 14<br>SLO - 3000 Celje | Tel. +386 3 490 83-20<br>Fax +386 3 490 83-21<br>pakman@siol.net |

| South Africa | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Johannesburg** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>Eurodrive House<br>Cnr. Adcock Ingram and Aerodrome Roads<br>Aeroton Ext. 2<br>Johannesburg 2013<br>P.O.Box 90004<br>Bertsham 2013 | Tel. +27 11 248-7000<br>Fax +27 11 494-3104<br>http://www.sew.co.za<br>info@sew.co.za |

| South Africa | | | |
|---|---|---|---|
| | **Cape Town** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>Rainbow Park<br>Cnr. Racecourse & Omuramba Road<br>Montague Gardens<br>Cape Town<br>P.O.Box 36556<br>Chempet 7442<br>Cape Town | Tel. +27 21 552-9820<br>Fax +27 21 552-9830<br>Telex 576 062<br>cfoster@sew.co.za |
| | **Durban** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>2 Monaco Place<br>Pinetown<br>Durban<br>P.O. Box 10433, Ashwood 3605 | Tel. +27 31 700-3451<br>Fax +27 31 700-3847<br>cdejager@sew.co.za |
| | **Nelspruit** | SEW-EURODRIVE (PTY) LTD.<br>7 Christie Crescent<br>Vintonia<br>P.O.Box 1942<br>Nelspruit 1200 | Tel. +27 13 752-8007<br>Fax +27 13 752-8008<br>robermeyer@sew.co.za |

| South Korea | | | |
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| **Assembly**<br>**Sales**<br>**Service** | **Ansan-City** | SEW-EURODRIVE KOREA CO., LTD.<br>B 601-4, Banweol Industrial Estate<br>1048-4, Shingil-Dong<br>Ansan 425-120 | Tel. +82 31 492-8051<br>Fax +82 31 492-8056<br>http://www.sew-korea.co.kr<br>master.korea@sew-eurodrive.com |
| | **Busan** | SEW-EURODRIVE KOREA Co., Ltd.<br>No. 1720 - 11, Songjeong - dong<br>Gangseo-ku<br>Busan 618-270 | Tel. +82 51 832-0204<br>Fax +82 51 832-0230<br>master@sew-korea.co.kr |

| Spain | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Bilbao** | SEW-EURODRIVE ESPAÑA, S.L.<br>Parque Tecnológico, Edificio, 302<br>E-48170 Zamudio (Vizcaya) | Tel. +34 94 43184-70<br>Fax +34 94 43184-71<br>http://www.sew-eurodrive.es<br>sew.spain@sew-eurodrive.es |

| Sweden | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Jönköping** | SEW-EURODRIVE AB<br>Gnejsvägen 6-8<br>S-55303 Jönköping<br>Box 3100 S-55003 Jönköping | Tel. +46 36 3442 00<br>Fax +46 36 3442 80<br>http://www.sew-eurodrive.se<br>jonkoping@sew.se |

| Switzerland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Basel** | Alfred Imhof A.G.<br>Jurastrasse 10<br>CH-4142 Münchenstein bei Basel | Tel. +41 61 417 1717<br>Fax +41 61 417 1700<br>http://www.imhof-sew.ch<br>info@imhof-sew.ch |

| Thailand | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Chonburi** | SEW-EURODRIVE (Thailand) Ltd.<br>700/456, Moo.7, Donhuaroh<br>Muang<br>Chonburi 20000 | Tel. +66 38 454281<br>Fax +66 38 454288<br>sewthailand@sew-eurodrive.com |

| Tunisia | | | |
|---|---|---|---|
| **Sales** | **Tunis** | T. M.S. Technic Marketing Service<br>Zone Industrielle Mghira 2<br>Lot No. 39<br>2082 Fouchana | Tel. +216 79 40 88 77<br>Fax +216 79 40 88 66<br>http://www.tms.com.tn<br>tms@tms.com.tn |

| Turkey | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Istanbul** | SEW-EURODRIVE<br>Hareket Sistemleri San. ve Tic. Ltd. Sti.<br>Bagdat Cad. Koruma Cikmazi No. 3<br>TR-34846 Maltepe ISTANBUL | Tel. +90 216 4419163 / 4419164<br>Fax +90 216 3055867<br>http://www.sew-eurodrive.com.tr<br>sew@sew-eurodrive.com.tr |

| Ukraine | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Dnepropetrovsk** | SEW-EURODRIVE<br>Str. Rabochaja 23-B, Office 409<br>49008 Dnepropetrovsk | Tel. +380 56 370 3211<br>Fax +380 56 372 2078<br>http://www.sew-eurodrive.ua<br>sew@sew-eurodrive.ua |

| United Arab Emirates | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Sharjah** | Copam Middle East (FZC)<br>Sharjah Airport International Free Zone<br>P.O. Box 120709<br>Sharjah | Tel. +971 6 5578-488<br>Fax +971 6 5578-499<br>copam_me@eim.ae |

| USA | | | |
|---|---|---|---|
| **Production**<br>**Assembly**<br>**Sales**<br>**Service** | **Southeast Region** | SEW-EURODRIVE INC.<br>1295 Old Spartanburg Highway<br>P.O. Box 518<br>Lyman, S.C. 29365 | Tel. +1 864 439-7537<br>Fax Sales +1 864 439-7830<br>Fax Manufacturing +1 864 439-9948<br>Fax Assembly +1 864 439-0566<br>Fax Confidential/HR +1 864 949-5557<br>http://www.seweurodrive.com<br>cslyman@seweurodrive.com |
| **Assembly**<br>**Sales**<br>**Service** | **Northeast Region** | SEW-EURODRIVE INC.<br>Pureland Ind. Complex<br>2107 High Hill Road, P.O. Box 481<br>Bridgeport, New Jersey 08014 | Tel. +1 856 467-2277<br>Fax +1 856 845-3179<br>csbridgeport@seweurodrive.com |
| | **Midwest Region** | SEW-EURODRIVE INC.<br>2001 West Main Street<br>Troy, Ohio 45373 | Tel. +1 937 335-0036<br>Fax +1 937 332-0038<br>cstroy@seweurodrive.com |
| | **Southwest Region** | SEW-EURODRIVE INC.<br>3950 Platinum Way<br>Dallas, Texas 75237 | Tel. +1 214 330-4824<br>Fax +1 214 330-4724<br>csdallas@seweurodrive.com |
| | **Western Region** | SEW-EURODRIVE INC.<br>30599 San Antonio St.<br>Hayward, CA 94544 | Tel. +1 510 487-3560<br>Fax +1 510 487-6433<br>cshayward@seweurodrive.com |
| | Additional addresses for service in the USA provided on request! | | |

| Venezuela | | | |
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| **Assembly**<br>**Sales**<br>**Service** | **Valencia** | SEW-EURODRIVE Venezuela S.A.<br>Av. Norte Sur No. 3, Galpon 84-319<br>Zona Industrial Municipal Norte<br>Valencia, Estado Carabobo | Tel. +58 241 832-9804<br>Fax +58 241 838-6275<br>http://www.sew-eurodrive.com.ve<br>ventas@sew-eurodrive.com.ve<br>sewfinanzas@cantv.net |

| Vietnam | | | |
|---|---|---|---|
| **Sales** | **Ho Chi Minh City** | **All sectors except for ports, mining and offshore:**<br>Nam Trung Co., Ltd<br>250 Binh Duong Avenue, Thu Dau Mot Town, Binh Duong Province<br>HCM office: 91 Tran Minh Quyen Street<br>District 10, Ho Chi Minh City | Tel. +84 8 8301026<br>Fax +84 8 8392223<br>namtrungco@hcm.vnn.vn<br>truongtantam@namtrung.com.vn<br>khanh-nguyen@namtrung.com.vn |

| Vietnam | | | |
|---|---|---|---|
| | | **Ports, mining and offshore:**<br>DUC VIET INT LTD<br>Industrial Trading and Engineering Services<br>A75/6B/12 Bach Dang Street, Ward 02,<br>Tan Binh District, 70000 Ho Chi Minh City | Tel. +84 8 62969 609<br>Fax +84 8 62938 842<br>totien@ducvietint.com |
| | **Hanoi** | Nam Trung Co., Ltd<br>R.205B Tung Duc Building<br>22 Lang ha Street<br>Dong Da District, Hanoi City | Tel. +84 4 37730342<br>Fax +84 4 37762445<br>namtrunghn@hn.vnn.vn |

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**Driving the world**

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